SPATIAL VARIATION IN RETAIL EFFICIENCY IN CENTRAL SCOTLAND

M J WALKER

DEGREE OF M.LITT.

UNIVERSITY OF GLASGOW

1972

ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 – 1346

TABLES AND FIGURES

PREFACE

I would like to thank Mr Crawford of the Scottish Office, Edinburgh; Mr Bluer of the Co-operative Union, Glasgow; and the staff of the Mitchell Library Glasgow and the National Library Edinburgh for their assistance and making available material consulted in the preparation of this thesis. My adviser, Dr A.S.Morris, kindly read through a manuscript draft for which I would also like to extend my thanks.

M J Walker

December 1972

CHAPTER ONE INTRODUCTION

A THE CONTEXT OF THE STUDY

1.1 The purpose of this thesis is to examine, firstly, some aspects of measurable spatial variation in the apparent level of efficiency in the retail trades and secondly, the interaction of shop location and retail efficiency under the effects of changes in the state of retail technique during the post war period.

1.2 In Part One the relationships between some environmental variables affecting retailing and the level of sales per employee, size of establishment and aspects of retail organisational structure are examined in a cross-sectional analysis of the Census of Distribution data referring to 1961.

1.3 Part Two presents a wider view of some of the processes active in changes in retail method. By looking at some of the factors associated with such changes which have a known and predictable relationship with retail productivity it is possible to infer quite a good deal about the likely nature of spatial changes in the level of retail productivity over time. Several trends which form these links between technical changes and trends in efficiency will be discussed in Part Two:

1 Greater concentration in retail ownership
2 Increased scale in retail operation
3 Increased capital investment in retailing
4 Changes in types of retail outlet
5 A decline in the total number of outlets serving a market of a given size

The relationships between these factors and emerging changes in retail location patterns are both direct and indirect. Matters will be considerably simplified by only examining the data for the food trades, which nevertheless contained over half the country's shops and one fifth of the retail workforce in 1966. It will be contended in Part Two that the changes associated with the increasingly widespread implementation

of new retail techniques and practices were the most profound and pervasive forces affecting the level of retail efficiency and the spatial distribution of shops in Britain over the period from 1961 to 1971.

1.4 Both sections draw upon the evidence available for 115 towns, which ranged in size from £190m sales to £0.2m sales in 1961, drawn from an area within Central Scotland which will be defined in Chapter Two.

1.5 The realised level of sales per employee is not a consideration likely to influence retail location decisions. In that context the retailer is ultimately more concerned with the expected level of profits. Similarly, there are more direct means of throwing light on cause-effect relationships in retail change. But this study does provide a first look at the practical effects of various environmental influences on the internal mode of shop operations; and the consequences of changes in retail technology. Stimulus for the study derived from three reflections.

1.6 Distribution occupies a strategic position in the spatial economy as an essential corollary of production, supplying the needs of over half total consumer expenditure in the U.K. Functionally, activities carried on in the sector range from transporting goods to storing, sorting and selecting goods for sale. Distribution is the largest single SIC Order in many towns in the study area, reaching over 20% of the workforce in some cases, and is represented in almost every settlement regardless of its size, location or type.

1.7 Productivity is a concept which has been relatively neglected in studies of spatial aspects of the economy, and is often basic to other concepts which may appear to be of more immediate interest. Distribution is a labour intensive industry and labour costs are second only to the costs of goods for resale. The level of sales per employee exerts a strong influence on total costs and gross margins. (Pollard & Hughes, 1955)

As information from Census sources on a town basis relates only to sales per employee and similar data on other costs, the use of capital or floorspace are not available on the same basis the analysis of Part One will be conducted in terms of this measure.

1.8 In the pre-war period retailing was described as an inefficient industry in comparison with the manufacturing sector, one characterised by too many outlets and an excessive demand for labour. (Smith, 1937) More recently the introduction of SET was partly based on the argument that as productivity was higher in the manufacturing sector, any shift of labour resources from the services sector to the manufacturing sector should result in improvements in the overall level of productivity in the economy as a whole. (Reddaway, 1970 Chap. 1) But over the last two decades evidence has emerged of changes which were taking place in the way retailers organise and carry through their activities. Self-service stores, supermarkets and the breakdown of traditional trade barriers were outward manifestations of that trend. Labour became increasingly expensive in the post-war period and self-service retailing offered one way of overcoming the difficulty of raising productivity, when the pace of rises was set in the manufacturing sector. Labour productivity rose faster from 1961 to 1966 than in any other period since 1945. (Smith, 1971 p.7) In that period the first appreciable decline in the total number of retail outlets in the post war period took place. (-8%) According to one estimate among grocery and provisions dealers changes in the level of sales per employee from 1961 to 1966 accounted for 44% of the increase in output (sales). (George, 1968 p.30) Several once and for all stimuli supplemented and clarified the force and direction of pressures related to technical change. During this period competition between retailers reached a peak, in certain areas the rate of urban renewal also increased and there have been significant changes in the pattern of consumer behaviour which greatly facilitated the acceptance of new retail practices.

B THE LITERATURE: PART ONE

1.9 By the very nature of the services performed in retailing, employment is tied to the approximate location of the consumer and the distribution of population. (Alexandersson, 1957; Morrisett, 1958) But analyses of retailing conducted within a central place framework have revealed systematic patterns of variation in establishment type and size and so on, with variation in market size, income levels and other facets of demand facing retailers in each locality. (Berry, 1967) Several studies have examined spatial variations in the level of sales per employee, and though it might be expected that it might in some respects reflect these patterns, findings have nonetheless been mixed.

1.10 In cross-sectional analyses conducted on a town or town-type basis have been found the most significant results to date. A homogenous six-fold town typology was employed by Hughes & Pollard (1955) to explain 1950 variations in sales per employee and associated patterns of shop sizes in towns of more than 50,000 population. In this scheme retailing in "Metropolitan dormitory suburbs" contrasted with that in "New industrial towns", for example, and with the exception of Aberdeen and Edinburgh all towns in Scotland included in the analysis fell into the "Old industrial group", with depressed industrial backgrounds, a high percentage of working class population, and shops old and ill adapted to modern needs.

1.11 George (1966) examined the pattern of sales, employment and productivity in retailing in 160 towns with a total annual turnover of more than £10m. in 1961. Contrary to the main hypothesis employed, town sales size did not significantly influence levels of productivity in the case of either a weighted index of total retail trade or most kinds of business examined singly. Other factors were more successful in explaining variation in sales per employee. Taken individually, 50% of the variation in sales per employee was explained by variations in the state of the local labour market;

45% by variation in establishment size; 30% by the market share of co-operative and multiple organisations and 52% by the level of per capita income in each town. In a multiple regression analysis the state of the local labour market (the percentage rate of unemployment-the percentage rate of unfilled vacancies for the five years to 1961) was the most important explanatory factor.

1.12 This study considered only a limited range of town sizes and did not examine towns smaller than Kilmarnock or Kirkcaldy, for example. The significance of trading relations between towns was not discussed.

C THE LITERATURE: PART TWO

1.13 The validity of the approaches just outlined rests on the hypothesis that at any point in time the geographic pattern of retail outlets approximates an equilibrium adjustment to the geographic distribution of consumers. However, there are continual adjustments in the pattern of retail activity to some extent independent of the changing geographic distribution of consumers so that this hypothesis is not entirely well founded. Changes in consumer tastes, levels of income, family size and levels of car ownership have altered the size and nature of retail markets directly and indirectly, through the adoption of new patterns of expenditure, the frequency and size of purchases and so on.

1.14 From a narrower viewpoint it is held that technical and organisational advances in retailing are not likely to be as important as thosein the "productive" sectors of the economy, and the kind of dramatic technical breakthroughs that characterise manufacturing industries are not possible in retailing. (Lipsey, 1971 p.11) Nevertheless, those changes attributable to shifts in retail technology over the last fifteen years are far reaching, and food retailing in particular has been subjected to changes of this type as great as those experienced in other sectors of the economy. Methods of selling have become of as much importance as distinctions between goods sold and it is no longer possible to refer to different types of goods sold without relating these to the kind of shop and its selling methods.

1.15 One view sees the acceleration in the improvement in productivity during the period from 1961 to 1966 as short lived. As the application of new retailing techniques nears saturation point, and as the point is reached where small units are left with those roles where they can survive, trends such as the decline in the small firm sector of retailing are expected to slow down. (Smith, 1971 p.2) On a basis of the 1966 Census returns economies of scale appear to rise steeply to establishment sizes of the order of £50,000 pa and then level off, indicating there may be an ultimate ceiling to gains from this source. On the other hand a rapid decline in the number of grocery and other food shops continued until the end of the decade. The period from 1961 to 1971 is an apposite context in which to examine the effects of technical change.

1.16 Inspite of an expectation that a declining proportion of increases in real income will be spent on food, this sector was still the single most important category of business in 1970 with 43% of total retail sales. (R.B., 157 March 1971) A systematic reduction is the number of food shops would influence the size of the total stock of shops in Britain more decisively than a reduction in the numbers of any other kinds of retail outlets. The food trades have been subjected to pressures which exemplify the forces of technical change, and present the most marked changes in the location, number and type of selling points serving retail markets to be found. From another point of view the market for groceries may be regarded as one of the least imperfect retail markets. Commodities are standardised, homogenous and in not intermittant supply and on the consumers side the average housewife has a fair knowledge of ruling prices and possible sources of supply. (Smith, 1937 p.28)

D SOME LIMITATIONS AND CAVEATS

1.17 Long run trends towards a lesser number of retail establishments of a larger size, the centralisation of facilities and so on are the result of a combination of factors. By examining only a section of

retail trade and a narrowly defined set of forces other important aspects of change in retailing will not receive commensurate attention. In particular, changes in consumer preferences and behaviour are taken as given, when they have been instrumental in the ready acceptance of the development of new forms of mass merchandising. Very little will be said about the growth of new types of retail establishment such as the boutique and health food store or organisations such as the discount house or mail order firm.

1.18 The strength of the conclusions to be presented varies with the uneven nature of the data available. Hypotheses should often be set in terms of turnover, employment and floorspace etc., when the only data available relates to the numbers of establishments involved. The shift to a new type of retail outlet, for example, takes three forms. New outlets may be opened. Secondly, existing outlets may be converted, a development which formed the greater part of the increasing numbers of self-service outlets in Britain during the early 1960s. Thirdly, a shift in buying habits from old units to new may reflect a growing acceptance of the innovation by shoppers. An inability to distinguish between each, given the nature of the data available, will tend to confuse the true nature of the changes taking place.

1.19 Finally, several aspects of retailing peculiar to retailing in Central Scotland and some important influences on the level of sales per employee will not be discussed. Rating and revaluation burdens on retailing in Glasgow, Edinburgh and Dundee were severe. (JGCC, March 1968 p.142 & Jan. 1971 p.9) The relationships between the pattern of sales per employee and population change 1951-61 will not be discussed, as in the cases of grocers and provisions dealers and other food retailers they only confirmed the results of earlier studies.

PART ONE

CHAPTER TWO HYPOTHESES; A FRAMEWORK FOR STUDY AND A REVIEW OF THE AVAILABLE EVIDENCE

A THE MEASUREMENT OF EFFICIENCY IN RETAILING

2.1 It is difficult to measure operating efficiency in distribution, partly because there is no satisfactory indicator of output which includes the service element as well as sales, and partly because adequate data on inputs is not available. The output of retailing is the activity of selling, and this is an aggregate of services such as holding stock, serving customers, breaking bulk, delivery and so on. Among inputs the person engaged is far from being a standard unit of input.

2.2 Sales per person employed, which approximates the reciprocal of the labour costs of distribution, may be used to compare productivity in well defined kinds of business. (Pollard & Hughes, 1955 p.72) There are many drawbacks to the use of this measure. It may systematically understate real economies of scale, for example, and the ultimate criterion of efficiency is the rate of return on capital. (McClelland, 1966 p.152) McAnally and Scott (1958) adopted the ratio of remunerative costs to sales, and McAnally (1966) adopted a productivity score which reflected certain chain store practices.

2.3 However, the amount of information available on capital formation in retailing at sub-national levels is negligible. Sales per square foot is only a partial measure of retail efficiency and may simply reflect the density of sales staff. Sales per employee remained the only generally available measure of productivity. The convention whereby two part-time workers are equivalent to one full-timer was adopted throughout.

2.4 Some correlates of sales per employee, including sales per square foot, the level of investment and method of retailing are discussed in Part Two.

B THE HYPOTHESES

2.5 Several variables which might influence the level of sales per employee and which derive from the literature are listed in Table 2.1. The system of priorities described below was adopted. Each variable may be classified as "technical" or "non-technical" (after Florence, 1948), ie. of greater significance betweeneach kind of business, (eg. migratory custom, see

Chapter Three) or within each kind of business respectively. Alternatively, some variables may be grouped as conditions governing mainly the consumer and her buying habits, others the shopkeeper and his entrepreneurial performance (the conditions of demand and supply). A further distinction "between the environmental factors affecting productivity and other factors subject to the control of the firm is absolutely essential. " (Lipsey, 1971 p.2) However, Table 2.2 adopts a classification based upon data availability and degree of centainty about the impact of the variable in question on the level of sales per employee at the sub-regional scale, ie. "proximate" and "remote" causes.(See Hall et al, 1961 p. 132) Thus "size of establishment" was considered a proximate influence on the level of sales per employee, which may be calibrated from Census sources.

2.6 Several variables are not reported in this thesis, after an initial analysis had been made. In the case of the labour market variables preliminary analysis revealed very weak associations with the level of sales per employee, in contrast to all theoretical expectations or previous empirical results. This was attributed to the nature of the data which was available, on a grouped employment exchange basis, and the probability that Central Scotland, with an average unemployment level almost twice the national average in the five year period 1957-1961 which was the basis of this finding, represented a homogenous area at one end of the nation-wide spectrum of labour market conditions. Similarly, the relationship between the rate of population change in the period 1951-61 and s.p.e. will not be reported, as (in this case initial findings largely confirmed those made in a wider context by McAnally (1966) and Hall et al (1961). The precise form of the relationships selected for further consideration and testin g on this basis

Table 2. 1 Some Explanatory Variables for Sales Productivity in Retailing.

1. a. Income per capita
   b. Migratory custom
   c. Population density
   d. Population change
   e. Socio-economic class
2. a. Organisational structure
   b. Level of capitalisation
   c. Retail methods & techniques
   d. Size of Establishment
   e. Structure of retail trade
3. a. Quality of labour
   b. Relative Wage and cost levels
   c. State of the local labour market and opportunities for alternative employment
4. a. Age of settlement
   b. Location of shop
   c. Size of settlement
5. a. Type of good sold-kind of business
   b. Value (size) of transaction
   c. Purchasing habits of consumers
6. a. State of the national (or local) economy
   b. Regulations and controls

Table 2.2 An Explanatory Framework

a) Cross Sectional

	4c, 5a, 4a	1d	1c	
	2d	6a	1d, 6b	
data	1a	1e,3c		
availability	2a, 4b	3a,b		
	2b, 2c			
	5b, c			
				proximity

b)Dynamic

5a, 2c, 6a	4c		
3c, b, 1d			
4b, 1a			

will be examined in the following four chapters.

C SOME ALTERNATIVE FRAMEWORKS.

2.7 The inquiry's findings will be closely affected by the spatial and temporal framework chosen to organise the inquiry. There are several dimensions to the problem of selecting the most appropriate framework; on the one hand the choice of the most fitting geographic individual, universe and scale and on the other alternative methods of analysis and comparison also deserve consideration. In most cases the limited nature of the data which is available prescribes only one practicable solution, though its ideal alternatives often possess important theoretical utility.

2.8 In most retailing operations the basic unit is the fixed establishment, shop or branch. (1) There are three alternative ways in which data for fixed establishments may be organised:

1 as spatial aggregates of establishments,

2 in comparisons between single establishments of the same type e.g. inter-firm comparison,

3 in a sample of individual establishments initially differentiated only with regard to location and kind of business.

Retail conformations identified by geographers provide an example of (1); (2) has been the subject of technical studies of retail productivity while (3) has been adopted in the past as a basis for theoretical work. In the present context data limitations preclude the second and third schemes at a cost of foregoing the precision, specificity and insight these approaches offer.

(FOOTNOTE) (1)

Significantly mobile shops, which formed 8.7% of all food shops in Scotland in 1961, making 5% of Scottish food sales (against national averages of 4.0% and 2.2% respectively) obtained levels of sales per employee on average twice that obtaining in other food shops. (BOTJ, 19. July 1963, p.133). They were particularly important in the structure of co-operative food retailing and were not confined to rural areas. Unfortunately they cannot be distinguished from fixed establishments in the 1961 Census returns and other data is insufficiently sensitive to give some idea of local variations in the importance of this form of retailing.

AGGREGATIONS

2.9 Particularly in view of the rapid development of new patterns of travel behaviour associated with increasing income levels and changing urban form the choice of the geographic area which best approximates the market is a difficult one. The several different kinds of shopping centres listed in Table 2.3 may be further sub-divided by additional locational characteristics. The pattern of shopping provision in Glasgow is distinctly linear, for example, with facilities lining old arterial routes through the city. Conceptions of the market vary and a chain effect, which carries the interaction of buyers and sellers further afield than a simple notion of the market would imply, must also be considered. In some kinds of business, on the other hand, there is evidence to suggest that competition takes place over an area closer to the "locality" than the town.(Cornwall, 1953 p.209)

2.10 Local authority areas are unique and non-modifiable units where any analysis has no absolute validity independent of these units. Measurements on this basis will tend to reflect the properties of the mesh which has been imposed on the system in order to measure it. All coefficients and tabulations in the following chapters are based upon towns treated as individual units of equal weight because there is no definitive supplementary evidence available for weighting the units. In comparisons with larger areas towns are reasonably homogenous in general conditions of retailing, but they form highly aggregated units which mask a great deal of significant variation necessary to establish the nature of the relations under examination. The Census data therefore implies a reliance on average performance.

2.11 Local Authority areas also differ widely in size, shape and population density through which the intensity of competition is likely to vary to a considerable degree. (See Robertson, 1969) The number and type of Local Authority areas may introduce an element of bias into the results. In the present study no data was available for suburban areas around Glasgow and Edinburgh; nor even medium sized population centres which had failed to acquire burghal status.

2.12 Nevertheless, town aggregates are the only basis on which the Census of Distribution data is widely and readily available, and the main basis on which all Census of Population data is published.

Table 2.3 Geographic Units and Retailing

1 Centres	3 Special areas
Convenience	Furniture areas
Neighbourhood	Auto rows
Community	Jewellery arcades
Regional	Street markets
2.Ribbons	4.Isolated shops
Traditional	Street corner stores.....
Urban arterial	Free standing S'mkts
Suburban ribbon	5.Census classifications
Highway orientated	Town totals
6.Planned & Unplanned centres	CSA and ROT totals
	Landward or DC areas

Source: Garner 1966 p.5. etal.

Table 2.4 Median Town Sales Sizes for SSR 1961

SSR	Median TSC-£000	Regional Percentage of GB Sales
Northern	2060	6.0
E & W Ridings	1760	7.7
North Midlands	2740	6.7
Eastern	1980	6.9
Greater London	13500	20.0
Rest of LSE	5050	5.9
Southern	1840	5.7
South Western	1600	6.4
Midland	3200	8.8
North Western	2400	12.0
Wales	1240	4.4
Scotland	920	9.7
Study Region	1230	
Great Britain	2160	100.0

Source: Table 3, Part 2 Summary Figures for Areas,
Report on the Census of Distribution 1961.

AN AREAL FRAMEWORK.

2.13 There were two main sets of alternatives from which an areal framework could be constructed; firstly, a sample of towns drawn from the total of 1180 in Britain for which data was available from the 1961 census or secondly, a complete set of towns drawn solely from one particular locality or area. The advantages of the former lie in the greater confidence with which findings may be extrapolated to Britain as a whole and the greater statistical precision with which parameters may be defined. Several sampling frames were available and a stratified frame in particular had available the results of studies which had used Census data (see Thorpe, 1968 and Carruthers, 1967) to guide sample specification. However, a complete set of towns drawn from one region has much to commend it. Regional data sets are more readily manipulated. Secondly, Tables 2.4 and 2.5 confirm that the study area offers a very wide range of town sizes with a lower median size than any other region - when interest centres in the relationships over the lower ranges of sizes. Thirdly, trading activity rests within contiguous areas which even a well defined sample of settlements will not completely reproduce and the DTEDC (NEDO, 1971 p.5) concluded that a regional view of shopping systems was essential to accommodate the hierarchial nature of these patterns. Finally, in the case of a data set which is a decade old the general nature of the relationships at that time are of greater importance than their precise parametric characteristics.

DELIMITATION OF THE STUDY AREA.

2.14 The study area composes the G.R.O. region of "Central Scotland" with the addition of the County of Angus. In total 115 urban Local Authorities, ranging in size from Glasgow to the Fife Burghs, are included and this area therefore includes all of the central Clydeside conurbation (and central industrial belt) and the major part of the industrial, urban and population base in Scotland. The Clydeside conurbation alone contained 35% of the total retail sales and 35% of the total population in Scotland in 1961. Three criteria guided the delimitation of this area. The number and size range of communities in the analysis was maximised subject to the two constraints of firstly, minimising the cost of obtaining the necessary data and secondly, approximating a closed and integrated system of trading relationships about the Glasgow - Edinburgh axis with the boundary

Table 2.5. Numbers of towns by sales size by standard statistical region 1961

Number of towns.

Standard Region	Sales Size of Town. £000 0000-0249	0250-0499	0500-0999	1000-1999	2000-3999	4000-7999	8000-15999	over 16000	Tot.
Northern	nil	3	3	15	26	10	4	6	67
E & W Ridings	3	4	14	31	18	5	4	10	89
North Midlands	nil	4	14	13	23	14	5	6	79
Eastern	1	6	19	22	16	13	10	8	95
Greater London.	nil	nil	nil	2	6	17	32	37	94
Rest of L & SE	nil	3	5	8	12	19	15	4	66
Southern	nil	2	3	10	12	14	5	6	52
South Western	nil	10	25	31	18	11	5	7	107
Midlands	nil	4	6	19	15	12	14	6	76
North Western	5	13	23	28	36	23	8	16	152
Wales	8	19	21	27	16	13	2	3	109
Scotland	27	40	37	45	26	8	8	5	196
Study Region	10	18	23	28	19	5	8	4	115
Great Britain	44	108	170	251	224	159	112	114	1182

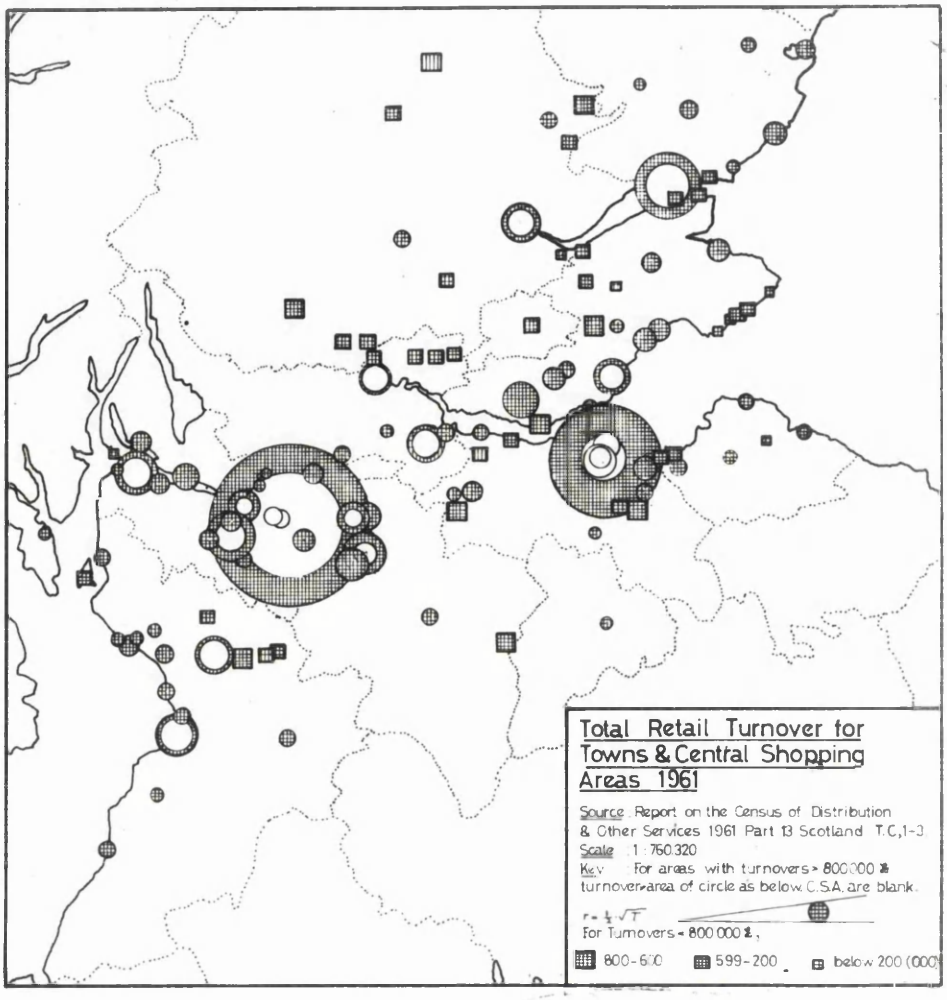
Source: Table 3 Part 2 Summary Figures for Areas, Report on the Census of Distribution and Other Services 1961.

drawn in such a way that the net flows of retail trade into and out of the assumed system were at a minimum. In practice extensive use was made of the numerous regionalisations submitted to the Wheatly Commission on Local Government Reform (see Report, Cmnd. 4150, Appx 11 and written Evidence Vols 1-26) and in particular the areas from which 5% or more of the resident population travelled to work in employment centres of over 5000 persons (1961 data). Maps 1 and 2 provide an indication of the data availability and sales sizes of towns included in that area in 1950 and 1961.

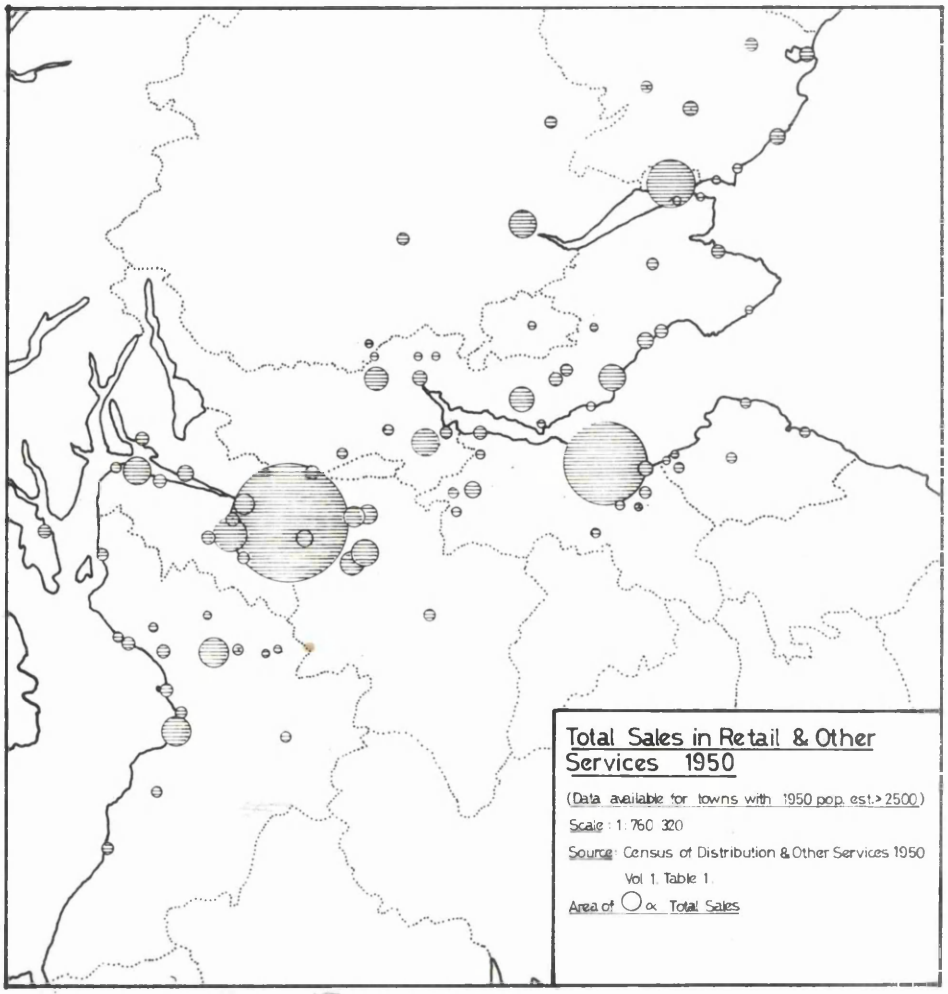
RETAILING IN CENTRAL SCOTLAND - A BACKGROUND NOTE.

2.15 In general the geographic structure of retailing in Scotland reproduced that found elsewhere in Britain (Rhodes, 1964 p.6) and a basic two fold division between industrial and rural areas and city and small town has dominated the pattern of retailing. (Sleeman, 1957). There tended to be fewer shops per capita and larger shops in comparison with England and Wales in total retail trade and kinds of business such as grocery and provisions and clothing and furniture, (Matheson, 1956) but this author did not explore the significance of these differences, and other more important aspects of differences between retailing in Britain and Scotland deserve elaboration. From 1948 to 1961 unemployment stood at the highest level among the standard statistical regions, sometimes twice the national average. Rates of increase in industrial production and levels of consumer income had both been consistently lower than the U.K. average over that period. (McCrone, 1964). As might be expected sales per employee had stood at levels below the national average. It will be shown in Part Two that the conditions of an ailing economy appear to have exerted a significant influence over developments in retailing, an aspect of the level of sales per employee which was noted elsewhere. (Gaskin, 1958 p.366; Cmnd 2864, para 123). Significantly, food prices in Scotland have tended to reach a level approximately 3% above the national average. (F.E.S. various dates).

Map 1


Total Retail Turnover for Towns & Central Shopping Areas 1961
Source: Report on the Census of Distribution & Other Services 1961 Part 13 Scotland T.C.1-3
Scale: 1:760,320
Key: For areas with turnovers > 800,000 £ turnover-area of circle as below. C.S.A. are blank.
r = ½√T
For Turnovers < 800,000 £,
800-600
599-200
below 200 (000)

Map 2


Total Sales in Retail & Other Services 1950
(Data available for towns with 1950 pop. est. > 2500)
Scale: 1:760 320
Source: Census of Distribution & Other Services 1950 Vol 1. Table 1.
Area of ○ ∝ Total Sales

D A REVIEW OF THE AVAILABLE EVIDENCE.

CENSUS SOURCES.

2.16 A wide variety of official and other sources were consulted in the preparation of this thesis. The Report on the Census of Distribution and other Services for 1961 (1964), together with information supplied directly by the Business Statistics Office referring to establishments, turnover and persons engaged in towns of less than 20,000 population in 1961, form the statistical base for Part One of this thesis. The data for 1961 was the latest available when the investigation was undertaken. In comparison with alternative sources of information the Census is internally consistent, comprehensive and objective and every attempt was made to align other sources with Census conventions, but in several respects these conventions deserve elaboration.

2.17 The Census authorities have a statutory duty to withhold, or combine with other data, details which might disclose information relating to individual retailers. Table 2.6 was compiled to illustrate the effects of this provision in practice. In each sales size class and kind of business the number of towns in which a return was made and disclosed (a) made but not disclosed (u) and no returns were made (n) were separated and summed. The Census office did not publish a return unless it related to at least three establishments and a numerical threshold was introduced which therefore paralleled but lay above "natural" sales size thresholds in each kind of business. Consequently, the rate of data loss for small town sales-sizes and for those kinds of business with high sales size thresholds (ie. 5, 6 and 7) was high. Nothing may be said about single retail units in any Local Authority area and the number of cases available varies widely between each kind of business which renders direct comparisons between each difficult. While data for grocers and provisions dealers (row 1) is available for the whole range of town sales sizes and a total of 111 cases that for general stores (row 7) is available only in the largest town sales sizes and a total of only 23 cases.

2.18 Questions of Census scope, response, definition and measurement are implicit in the use of this material and reference should be made to Census Appendices for full details; but on several points the Census conventions deserve clarification here and in Chapter Five. Retail

Table 2.6 Census of Distribution for 1961. Retail Trade Tables

The Operation of the Disclosure Rule: Towns and CSA's.

Towns — Number of towns in each category.

Kind of Business	Sales Size of Local Authorities £ 000											
	0000-0249			0250-0499			0500-0749			0750-1249		
	a	u	n	a	u	n	a	u	n	a	u	n
1.	9	2	-	14	1	-	15	-	-	17	-	-
2.	5	6	-	14	1	-	14	1	-	17	-	-
3.	2	9	-	10	5	-	15	-	-	16	1	-
4.	2	8	1	5	10	-	13	2	-	6	1	-
5.	-	8	3	3	11	1	1	13	1	13	4	-
6.	1	10	-	-	15	-	2	12	1	5	12	-
7.	-	1	10	-	3	12	-	4	11	-	10	7
Total L.A.	11			15			15			17		

	1250-1999			2000-2999			3000-5000			Gt. 5000		
	a	u	n	a	u	n	a	u	n	a	u	n
1.	18	-	-	13	-	-	6	-	-	17	-	-
2.	18	-	-	13	-	-	6	-	-	17	-	-
3.	18	-	-	13	-	-	6	-	-	17	-	-
4.	18	-	-	13	-	-	6	-	-	17	-	-
5.	18	-	-	13	-	-	6	-	-	17	-	-
6.	7	11	-	3	10	-	3	3	-	17	-	-
7.	-	11	7	3	10	-	3	3	-	17	-	-
Total L.A.	18			13			6			17		

Central Shopping Areas and Rest of Town Areas

	1000-3999			4000-6999			7000-10000			Gt. -10000		
	a	u	n	a	u	n	a	u	n	a	u	n
1.	7	-	-	13	-	-	6	-	-	7	-	-
2.	7	-	-	13	-	-	6	-	-	7	-	-
3.	7	-	-	13	-	-	6	-	-	7	-	-
4.	7	-	-	13	-	-	6	-	-	7	-	-
5.	7	-	-	13	-	-	6	-	-	7	-	-
6.	3	4	-	7	6	-	3	3	-	4	3	-
7.	2	4	1	6	6	1	3	3	-	4	3	-
Total Areas	7			13			6			7		

Source: as Table 3.1

trade is broken down on a "Kind of business" basis, the seven main headings of which are as follows:

1. grocers and provisions dealers
2. other food retailers
3. confectioners, tobacconists and newsagents
4. clothing and footwear shops
5. household goods shops
6. other non-food retailers
7. general stores.

Figures presented in the following chapters relate to turnover in different kinds of shops rather than to sales of different commodities, though the main commodity sold is the basis of classification. Establishments classified by kind of business therefore reveal the number of outlets with their main sales in a particular group of commodities and not the total number of outlets retailing a particular commodity. This sales breakdown is an imperfect guide to the pattern of spending in commodity terms and comparison with the results of commodity based central place studies must be made carefully.

2.19 To the extent that the composition of retail sales within each kind of business varies between localities then variation in sales per employee will lose some of its validity as a measure of retail productivity. The "intensity of service" or amount of retail output associated with resale varies between commodity groups. When size of market is used as an independent variable there is a tendency for new, specialised units to appear and for some kinds of business to split into differentiated subsections in response to both highly specialised patterns of demand and potential sales at or above these threshold levels. (Duncan, 1959 p.117). Conventional classifications of business tend to breakdown in large markets (Berry, 1967 p.46) and at the other end of the scale in small and rural markets the lines of demarcation between kinds of business like grocery and provisions dealers and the general store are hazy; Smith (1937, p.45) showed that there was a clear tendency for such outlets to be found in small towns. To the extent that there are differences in the range of merchandise sold in stores classified to the same kind of business in different parts of the county, then the validity of sales per employee measured across these localities is also weakened.

NON-CENSUS SOURCES

2.20 The overall degree of completeness, consistency and accuracy of the directory sources consulted was variable and generally low. Considerable circumspection is necessary in the interpretation of series collated from these sources.

CHAPTER THREE THE EXTENT AND NATURE OF THE RETAIL MARKET AND PRODUCTIVITY

A INTRODUCTION

3.1 Most retail establishments face a geographically limited market. In this chapter three aspects of retail markets,

1 Size
2 The distance factor and the importance of migratory custom
3 The local level of consumer income

and their relationship with the level of sales per employee will be analysed.

B MARKET SIZE AND RETAIL PRODUCTIVITY

ECONOMIES OF SCALE AND PRODUCTIVITY

3.2 A positive association between scale of output and level of productivity is one manifestation of economies of scale or increasing returns. Economies result from a greater volume of sales passing through individual retail outlets, and large scale organisation, made by organisations uniting a number of outlets under a single management. Even if size of undertaking and size of establishment could be measured separately, it is not entirely clear which is most relevant, (Hall & Knapp ; Florence, 1956 pp.68-79) though the latter is of chief concern in the present chapter. There is considerable theoretical and practical support for the idea that sales per employee is positively related to establishment size. Among the economies most relevant are those related to the imperfect divisibility of labour, management and capital. Large shops, for instance, are more likely to be able accurately to adjust the number of their employees to the prevailing level of demand and in addition make use of specialised labour and management, technical economies

of scale are available and capital may be more fully employed.

3.3 The statistical evidence shows that over most ranges of establishment sales sizes sales per employee increases and in the range of lowest establishment sizes this rise in both absolute and relative terms is remarkably uniform in all kinds of business. (Pollard and Hughes, 1956 pp. 73-79). With regard to the concept of an optimum size of establishment it is unwise to conclude that sales per employee falls in the largest establishments. (McClelland, 1963). Each market size will permit a certain size of establishment which will in turn influence the level of sales per employee which may be obtained. A factor limiting total sales in the retail establishment is the effect of the sloping demand curve for retail services due to increasing distance of the consumer from the store and thus a limitation on each outlet's size is the localisation of demand. To increase the volume of sales it becomes necessary to lure additional customers and the rising marginal costs of doing so set a limit to the scale of operations. As a greater volume of customers will be available the greater the mass and density of demand in any locality the greater the scale at which any centrally supplied function may be provided. It is evident that large retail centres have more specialised retail structures than those in small towns and a wider range of retail outlets are found with some retailers concentrating on expensive lines, others rapidly moving goods, some on specialised items, and so on. The economies of scale arising from larger towns are taken partly in increased specialisation between establishments and partly in increased size of individual establishments. (McClelland, 1966 p.214).

COMPETITION AND SALES PER EMPLOYEE.

3.4 Increased competition from an efficient rival has the effect of increasing productivity all round, a process not necessarily confined within one kind of business. More efficient stores will therefore exert a positive influence on less efficient outlets and a climate favourable to higher levels of productivity may evolve. The elimination of some of the inefficient firms will itself increase average productivity and in order to survive other firms may reorganise their selling methods. There are several facets of retailing in large,

dense markets which ensure that competition and these pressures on levels of productivity are maintained at higher levels than elsewhere. Transport and information facilities are well developed and comparison shopping by consumers will be more common. Pressures from labour and occupancy costs provide additional stimuli for efficient operation. Complementarity in the sense of proximity to outlets of a similar type is a feature of large retail markets able to support several outlets of one type, and external economies of scale may derive from the advantages of juxtaposition to rivals.

CONSTRAINTS ON STORE SIZE AND THE LEVEL OF SALES PER EMPLOYEE.

3.5 However, these links between market size and store size are not unique, for an increase in sales may be met in several ways other than increase in turnover in each outlet. An undertaking may operate more outlets, a form of replication; or the range of operations may be widened as when shops sell a wider range of goods, or deepened as when establishments perform more services associated with selling, such as prepacking. The internal problem of assembling customers' purchases at one point (for which self-service provides one solution) has been a traditional constraint on the size of outlets. There are numerous imperfections in each retailer's response to market conditions and situations where retailers are not optimising the scale of their operations are probably very common. Each of these factors may be expected to exert some constraint on the relationship between size of store and sales.

RETAIL TRADE BY KIND OF BUSINESS.

3.6 These observations relate to retail trade in general. The impelling theoretical reasons why sales per employee should be calculated for single and homogenous kinds of business were discussed in Chapter Two. Largely because the amount of selling effort or retail service supplied varies between different kinds of business, the relationship between sales per employee and store size also varies between kinds of business. (Hughes and Pollard, 1956 Section 1). In a more general context the spatial structure of trading varies markedly for different kinds of business. As centres increase in size they are used for

different purposes and a different set of relationships with surrounding areas are generated. (Tarrant, 1967 pp. 22-60). Differences in market size are accompanied by differences in the composition of trade and changes occur in both the type of goods sold and the outlets through which goods pass. Towns were grouped by sales size and the average percentage of sales in each kind of business calculated. Table 3.1 reveals how one aspect of retail structure, the percentage composition of total sales, varies with size of towns in the study area.

Over the range of sizes in the study area grocery and other food sales fell from 67% to 40% of total sales, while the proportion of clothing and footwear sales doubled. Rises in the proportions of sales in kinds of business 5 and 7 are less marked while those in 3 fell over the range of sizes to £1m.

3.7 Similar findings have been reported for Britain as a whole and over a different range of market sizes. (Thorpe, 1968 p.183, McAnally, 1964 p.195). Table 3.1 reflects differences in the threshold sizes of different goods, the degree of dispersion of retail outlets and the extent people were prepared to travel to purchase different kinds of goods. A distinction has traditionally been drawn between "convenience goods" or "flow goods" and "shopping goods", the former purchased frequently and in small amounts from sources nearby, the latter infrequently and with more effort and consideration on the part of consumers. Grocery and provisions and clothing and footwear have frequently been chosen to exemplify these divergent intra-retail patterns and special attention will be paid to these two kinds of business in the chapters which follow. While there has been considerable and increasing overlap between the two categories of goods the distinction was a valid one in 1961.

SUMMARY.

3.8 Figure 3.1 illustrates the suggested causal sequence. As the number, size and other characteristics of outlets discussed in para. 3.5 may vary there is not necessarily a systematic association between all sizes of market, sizes of shop and sales per employee. The precise form of the association is a question of the range of market sizes under

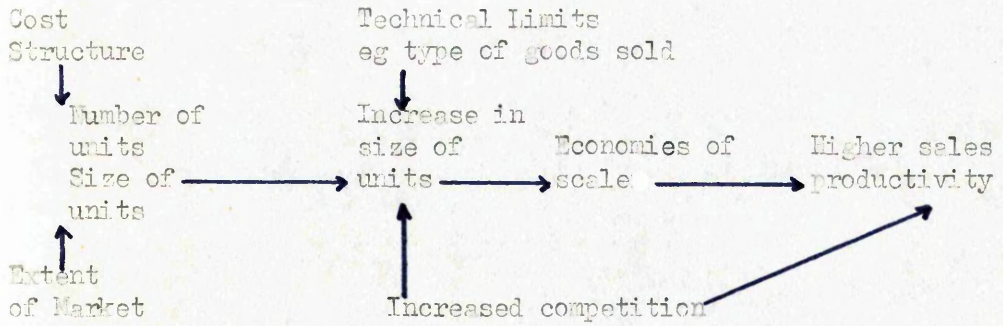
Table 3. 1 Percentage Composition of Retail Trade and Sales Size of Town Central Scotland 1961

Kind of Business	Sales Size of Towns £000								
	0000 0249	0250 0449	0500 0999	1000 1999	2000 3999	4000 7999	8000 15999	over 16000	all Scotland
1	38.9	41.2	39.4	33.3	31.6	31.5	22.9	23.7	28.8
2	33.1	24.7	23.1	24.0	21.1	19.1	17.5	16.2	19.0
Food total	67.1	64.6	62.2	57.3	52.7	50.6	40.3	39.8	47.8
3	*	14.8	11.2	11.4	8.9	9.5	8.1	9.1	10.3
4	*	10.1	12.1	12.8	13.0	14.2	19.6	19.0	15.8
5	-	*	7.3	9.2	10.5	10.2	11.8	10.9	9.8
6	*	-	*	5.6	6.0	4.8	7.0	6.9	6.7
7	-	-	-	-	12.4	11.0	13.3	14.3	9.5
Non-F Total	32.9	35.4	37.8	42.7	47.3	49.4	59.7	60.2	52.1

Source: Report on the Census of Distribution and Other Services, 1961; Area Tables, Part 13, Scotland and information supplied directly by the Department of Trade and Industry.

Notes: 1) Percentge valves may not total 100%. Due to the operation of the operation of the disclosure rule values in each column may refer to different groups of towns.
2) * number of cases insufficient to calculate mean.

Figure 3.1 The extent of Market and sales per Employee in Retailing.



consideration, the importance of economies of scale in each kind of business and the degree of competition which will determine the extent to which potential economies are realised. The position and extent of the ranges of market sizes through which size of market positively and measurably affects sales per employee is of especial interest.

THE DATA.

3.9 Total retail sales has been widely considered the most appropriate and universally applicable measure of market size and aggregate importance. (Scott, 1970 p.113). Rank associations with alternative measures such as total number of retail establishments and total number of persons engaged over towns in the study area were statistically significant and high.(1) K.D. George concluded that the sales of the smallest towns included in his study (greater than £10m. per annum) were probably large enough to allow retailers in most kinds of business to take full advantage of the available economies of scale. (1966, p.19). The present study deals with a wider range of sizes from of the order of St. Monance (£0.15m.) to Glasgow (£190.01m.) with 47 returns of less than £1m., 42 in the range £1m. - £8m. and 12 over £8m. Concomitantly the total number of establishments in these towns varied from 25 to 9,000. This range extends down to the village store whose market is inevitably limited by the size of the village.

3.10 It is both convenient and useful to be able to assume unimodal and symmetrical distribution of sales per employee values in further analysis and Table 3.2 presents some simple summary statistics of central tendency and dispersion for these distributions. Each distribution is unimodal and the symmetry of 1, 3, 4 and 6 was fully confirmed by the application of Pearson's X^2 goodness of fit test under Ho:

FOOTNOTE (1)

Towns were grouped by sales size. For towns over £3m. sales Spearman's r for all associations between total sales, total number of establishments and total persons employed in each town were all over +0.97; for towns over £1m. sales over +0.83, for towns under £1m. sales over +0.80.

population distribution normal and a = 0.01. The degree of skew in each of the other distributions was not serious and further analysis proceeded with raw untransformed sales per employee values. The differences between these mean values were attributable to different selling efforts, types of goods sold and so on and have been referred to.

3.11 Matters would also be simplified if the same towns occupied the same positions in sales per employee rankings, a question of whether differences between kinds of business were sufficiently large to overwhelm any tendency for towns to have a high level of sales per employee in several kinds of business. Dependent on the outcome high and low productivity areas might be more readily identifiable and the effects of general environmental factors much as market sizes and income levels analysised in terms of the general level of retail productivity in each area. K.D. George constructed a weighted index of the overall level of sales per employee in each town. Table 3.3 presents the results of ranking sets of towns by the level of sales per employee in each kind of business and measuring the degree of association between each pair of ranks. Towns were grouped in three sales size classes to ensure comparison was made within groups of roughly similar composition, overcome the haphazard operation of the disclosure rule and to isolate heteroscedasticity in the values for smaller towns for which evidence will be presented later. Spearman's r was calculated for each of the 37 pairs shown.

3.12 17 of the coefficients were statistically significant at a = 0.05, but the degree of association between kinds of business varied considerably and 22% of the coefficients were negative. Variation in the number of cases within each group prevented the application of an overall measure of agreement among the ranks such as Kendall's w. The two food kinds of business were closely linked, and both with kinds of business 4 and 5. Associations with 3 and 7 were low or negative. None of the associations were especially strong and the construction of an overall productivity index, if weighting problems in the light of para. 3.6 could have been overcome, was adjudged impracticable. A more fruitful approach was therefore found in examining the nature of differences in the spatial variations in sales per employee between each kind of business.

Table 3.2 Variation in Levels of Sales Productivity Central Scotland 1961

Kind of Business	n	mean	SD	median	range
1	111	4.88	0.60	4.87	3.74
2	107	3.31	0.58	3.23	3.33
3	100	3.91	0.75	3.93	3.80
4	94	3.43	0.64	3.43	3.90
5	72	3.46	0.71	3.52	3.88
6	39	3.05	0.33	3.05	1.46
7	23	3.38	0.41	3.28	1.46

Source: as Table 3. 1

Table 3. 3 Values of Spearman's r for towns ranked by levels of sales per employee

a) Town Sales Sizes gt. £3m

Kind of Business	Kind of Business 2	3	4	5	6	7
1	+0.61*	-0.25	+0.11	+0.45*	+0.38*	+0.31
2		+0.29	+0.25	+0.30	+0.28	-0.02
3			+0.39*	-0.01	+0.06	-0.14
4				+0.25	+0.44*	-0.04
5					+0.62*	-0.06
6						-0.11
No. of Cases	23	23	23	23	20	20

b) Town Sales Sizes gt. £1m

	2	3	4	5
1	+0.27*	-0.09	+0.30*	+0.47*
2		+0.13	+0.45*	+0.42*
3			+0.12	+0.05
4				+0.26*
No. of Cases	64	64	64	62

c) All Available Town Sales Sizes

	2	3	4
1	+0.23* (106)	+0.08 (100)	+0.28* (93)
2		+0.20* (99)	+0.25* (91)
3			+0.20* (91)

* Significant at A = 0.05 under Ho: two ranks not associated

Source: As Table 3. 1

SALES PER EMPLOYEE AND SALES SIZE OF TOWN.

3.13 Table 3.4 provides a tabular summary of the relationship between town sales size and the average level of sales per employee. The number of towns in each size category varied and the average levels of sales per employee should be interpreted carefully. With the exception of clothing and footwear shops (4), where the highest levels of sales per employee were found in the largest size class, there was no simple and systematic association between town size and sales per employee. The adoption of alternative sales size classification such as that of Thorpe (1968) only confirmed this pattern. The product coefficients of correlation in Table 3.6 provide a measure of the overall degree of linear association between the same variables; with a highly skewed distribution of town sizes log transformation of sales sizes produced the highest r^2 values. Six of the seven coefficients were positive, but with the exception of newsagents etc. (3) and clothing and footwear stores (4) where 12% of the variation in sales per employee was explained, these linear relations had a low range of explanatory power.

3.14 In the case of general stores (7) different variety and department stores cater for different markets. While variety stores emphasised price and convenience, department stores cater for entirely different markets in the middle and higher income group, which affects the composition of sales. (Pasdermadjian, 1954 p.84). Small stores, with a tendency to be found in smaller towns, enjoyed higher levels of sales per employee which were attributable to the type of service and mix of goods sold in those outlets.

3.15 The above analysis covered the whole range of sales sizes and on a basis of the evidence in scatter diagrams and Table 3.4 towns were classified to more broadly homogenous groups of under £1m. sales size, (47 cases), £1m. - 2m. (29 cases) and over £2m. (35 cases). Evidence of heteroscedasticity in the overall relationships was isolated with variance in sales per employee values in grocery outlets in towns over £1m. sales size (64 cases) = 0.153, and 0.612 (£000) for 47 cases of less than £1m. sales size (respective mean values £4,920 and £4,820). The relationship between sales per employee and town size was examined within each sub-group and in the food trades sales per employee rose steeply to town sizes around £1m. with little

Table 3.4 Sales per Employee By Sales Size of Town. Central Scotland 1961

Kind of Business	Sales Size of Town £000. 0000-0249	0250-0499	0500-0999	1000-1999	2000-3999	4000-7999	8000-15999	over 16000
1.	4.49	4.65	5.07	4.88	4.95	5.03	4.95	4.84
2	2.63	3.25	3.31	3.50	3.33	3.36	3.32	3.36
3		3.47	3.60	4.06	3.92	4.55	4.12	4.51
4		3.21	3.18	3.46	3.42	3.62	3.82	3.94
5	-		3.08	3.51	3.40	3.72	3.65	3.56
6	-	-		3.00	2.88	3.25	3.09	3.20
7	-	-	-	-	3.39	3.47	3.44	3.12

Source: as Table 3.1

Table 3.5 Sales Size of Store by Sales Size of Town
Central Scotland 1961

Kind of Business	Sales Size of Town £000 (as above)								all towns
1	11.2	15.9	20.0	20.4	22.7	26.5	22.0	21.5	19.85
2	7.20	9.71	13.0	16.7	15.5	15.0	18.2	14.0	14.15
3		8.34	9.03	10.1	9.63	12.5	11.7	11.7	9.88
4		6.28	8.88	11.9	13.2	17.3	22.8	25.5	12.75
5	-		7.31	13.2	16.5	20.8	23.3	21.6	15.44
6	-	-		9.45	12.7	15.9	15.9	14.4	12.30

Source: as Table 3.1

systematic variation or trend in larger towns. By mingling the correlated and un-correlated portions the overall correlation had been reduced below that found in the range of town sizes up to £1m.

SALES PER EMPLOYEE AND SIZE OF ESTABLISHMENT.

3.16 The statistical relationships between sales and sales per employee do not say much about the direction of causation and in this respect the size of the retail unit was important. (Levy, 1947 p.39). There is no one convenient measure of establishment size, which along with size of firm may be described in principle in terms of sales, net value added, persons engaged or capital employed. The arithmetic mean establishment sales size only was available for each town, and deviations about this mean were probably very large. Additional difficulties are encountered in categorising the economic implications of different degrees of "smallness".

3.17 Smith (1937, p.37) hypothesised not one "normal" size of shop in each trade but a series of sizes adapted to the village, market town or city in which each outlet was situated with differences between the scale of operations which experience had proved to be most efficient in each class of community. Numerous central place studies since confirmed a positive association between market size or rank and the size of establishments located there. Table 3.5 and the correlation coefficients of Table 3.6 summarise the evidence drawn from the study area. The positive association between establishment size and sales was strongest in the case of clothing and footwear shops (4) and general stores (7), where establishment sizes reached a peak in the largest size group containing Glasgow, Edinburgh, Dundee and Paisley. In kinds of business 4, 5, 6 and 7 over 48% of the variance in establishment size was explained by log (town sales) while the largest food stores, in contrast, were found in the intermediate town sales size groups.

3.18 With the exception of general stores the evidence of a close link between establishment size and sales per employee was also well founded. (See Table 3.6). In kinds of business 4, 5 and 6 the association between market size and sales per employee would seem to be explained by the strong links between market size and establish-

Table 3.6 Correlation Coefficients for TSS, SSE, SPPE

Central Scotland 1961

a) All cases

Kind of Business	SPPE SST	SPPE LOG(SST)	SPPE SSE	SSE LOG(SST)
1 (111)	+0.02	+0.16	+0.30	+0.49
2 (107)	+0.04	+0.16	+0.45	+0.41
3 (100)	+0.21	+0.36	+0.38	+0.42
4 (94)	+0.20	+0.35	+0.57	+0.78
5 (72)	+0.04	+0.16	+0.47	+0.69
6 (39)	+0.17	+0.30	+0.45	+0.67
7 (23)	-0.14	-0.21	-0.27	-0.76
		b)TSS £1m		
1 (64)	-	+0.05	+0.19	+0.15
2 (64)	-	-0.06	+0.56	-0.07
		c)TSS £1m		
1 (47)	-	+0.36	+0.35	+0.56
2 (43)	-	+0.41	+0.26	+0.52

Source: as Table 3.1

ment size, and establishment size and sales per employee. These links between sales per employee and establishment size, and establishment size and the total volume of sales in each market, were not so marked in the food trades. Nevertheless, Table 3.6 shows that the break at £1m. sales size clarified this picture. 31% of the variance in the size of grocery establishments in towns with less than £1m. total sales was explained by market size, while the two variables were not associated in the group of larger towns.

SUMMARY AND DISCUSSION

3.19 George found no variation in productivity levels with town size in kinds of business 2, 3, 5, 6 and 7; and the highest levels of sales per employee in the grocery trade (1) obtained in the smallest sales size classes. In the present context the direct links between town size and productivity were weak in the food trades also. Systematic rises in sales per employee ceased in towns with more than £1m. sales per annum whereafter no simple association between these variables was uncovered. In aggregate terms food outlets were able to exploit the available economies of scale quite fully in towns of under 6,000 population, £1m. total sales and approximately 40 food outlets. These towns lay in the lower quartile of Britain's town size distribution (see Table 2.5), with an even lower share of the country's food trade.

3.20 It follows that the range of town sizes which was relevant in determining the size of outlets in the food trades, via the existence of economies of scale, was small. On the other hand, the consistently rising level of sales per employee in clothing and footwear outlets was clearly associated with the increased establishment sizes made possible in larger towns. This pattern may be quite confidently attributed to the locational practice of large multiple chains in that field. (See Chapter Four) The different abilities of the food and shopping goods trades to exploit available economies of scale is apparent.

3.21 Clearly, there was no single critical level of total sales

at which levels of sales per employee were, overall, highest.

3.22 Moser and Scott (1961, per. 42 and 61) found town population size a weak differentiating factor in a much wider context. It is of particular interest, however, why the large and dense retail market in Glasgow and the other towns of the central Clydeside conurbation did not exert a more positive influence on levels of retail productivity than appears to be the case in these findings. Conditions were such that high levels of productivity might have been expected to obtain there. (Gaskin, 1958 p.356). As other hypotheses are introduced into the analysis in later chapters this problem will be returned to again.

C THE ROLE OF MIGRANT CUSTOM AND RETAIL PRODUCTIVITY.

INTRODUCTION.

3.23 Customers are dispersed in space and significant differences between market centres of the same size may be attributable to the relationship between each market and its surrounding population. Migrant custom, or the retail sales attracted to a market centre from outside its immediate surroundings, is a large element in the total sales volumes of some centres. The Census data permits only the most limited examination of the nature and size of flows of retail custom and its impact upon the structure of retailing but the relationships between sales per employee and retail structures and some alternative measures of the importance of migrant custom form the burden of Section C. Migratory custom affects a whole range of factors impinging on the supply of retail services. Centres with extensive market areas find it feasible to specialise in the provision of retail services and there tend to be more shops per 1,000 resident population, with differentials over other wise comparable towns most marked in clothing, furniture, books, jewellery and leather etc.; more business types and wider range of merchandise on sale. The unique organisational structure which has evolved in such centres will be described in Chapter Four. Main centre shopping is a different kind of activity from local shopping in non-central areas and where customers have made special trips to the centre for specific purchases a specialised pattern of demand is the result.

THE IDENTIFICATION OF MIGRANT CUSTOM.

3.24 Several studies of the comparability of central place indices indicate that the degree of correspondence (and substitutability) between these measures is not high, particularly in the case of towns marginal to groupings based on such indices. (Davies, 1970 p.60). Centres are often classified according to the range of facilities offered and the frequency of occurrence of index services which are used to rank centres on graded point value scales. Table 3.8 presents two examples of such component variables; the number of "principal stores" in towns in the study area derived from entries in Stores and Shops Directory (1961) and the number of "general stores" from Census of Distribution returns. Though a hierarchy of values resulted from the series these measures were only available for a small proportion of the towns in the area and did not differentiate migratory custom from other sales. A more appropriate measure of migrant custom and its impact on retail structure should be better defined and more specific. (See Appendix B).

SALES PER INHABITANT (SPI).

3.25 This measure derives from Census sources and refers to the same collection of shops as other Census measures. The ratio of total town sales to town population purports to measure the relative importance of sales made to customers resident outside the Local Authority area in question or in particular the relative share of urban and other components. (2) over. A related use of this measure is found in Price (1970). The validity of SPI explicitly rests on the assumption that each Local Authority area is roughly the same as the urban market area; and it will reflect local differences in income per capita, the price of goods and services and expenditure patterns. It is not necessarily a measure of the relative status, centrality or rank of each centre and does not say anything about the precise geographic origin, means and frequency of travel or the socio-economic class composition of the customers. Additional information is required to determine whether the custom is, for example, tourist as in the case of Rothesay, Largs, Helensburgh or

Table 3.8 Some trade measure Rankings: Central Scotland 1961

a) Numbers of 'Principal Stores'1961 (Stores and Shops Directory)

TSS at £1m.	no	Rank	TSS lt £1m
Glasgow	41	1	
Edinburgh	23	2	
Dundee	11	3	
Perth	8	4	
Stirling	7	5	
Ayr	3	6	not available
Dunbarton	"	"	
Dunfermline	"	"	
Greenock	"	"	
St Andrews	"	"	

b) Numbers of 'General Stores'1961 (Census of Distribution)

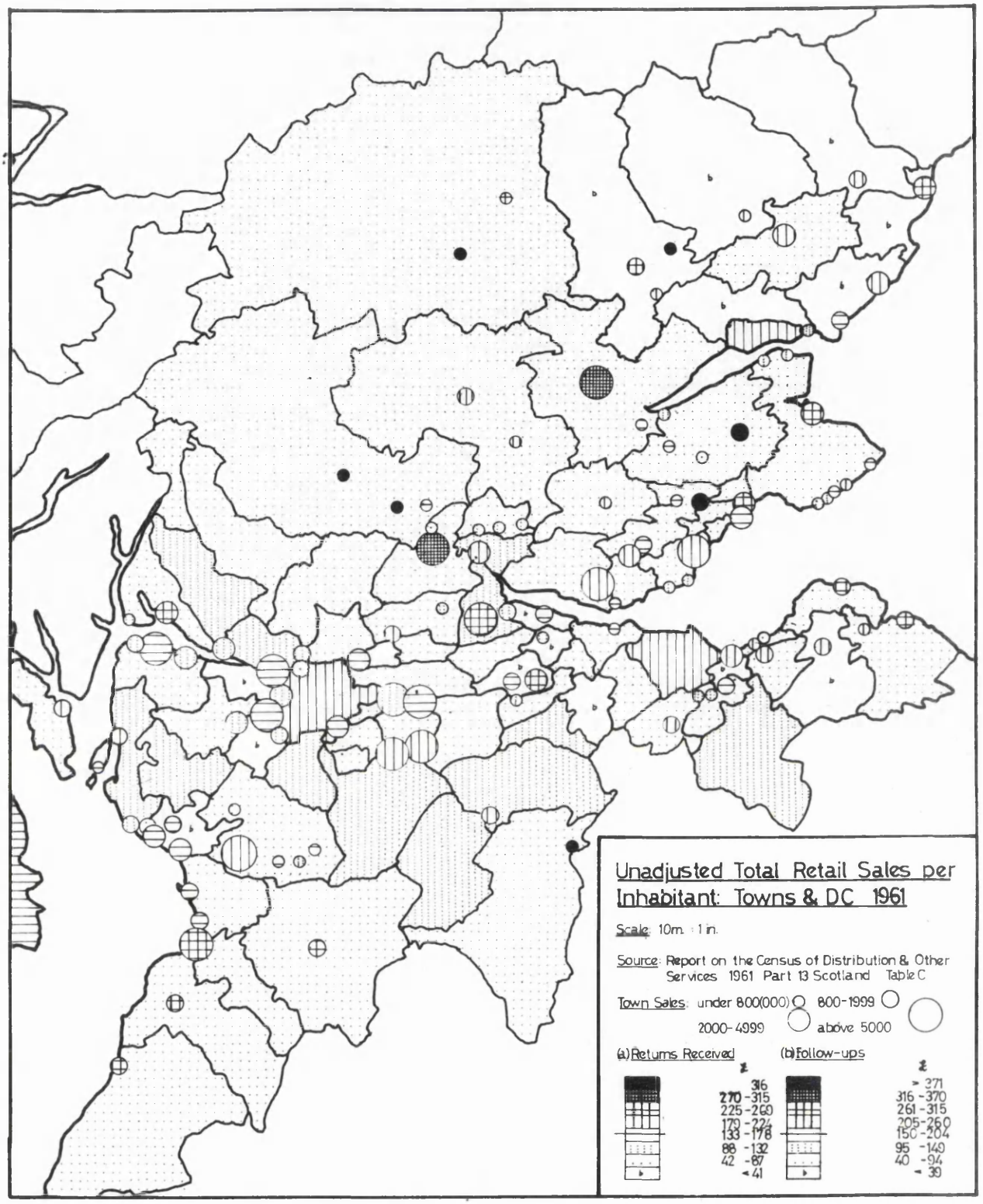
TSS at £1m	no	Rank	TSS lt £1m
Glasgow	63	1	
Edinburgh	28	2	
Dundee	14	3	
Kirkcaldy	11	4.5	
Ayr	11	4.5	
Kilmarnock	10	7	not available
Dunfermline	10	7	
Motherwell	10	7	
Falkirk	9	9	
Perth, etc	8	11	

Table 3.9 Total Sales Per Inhabitant (Census of Distribution)Central Scotland 1961

TSS at £1m	Rank	TSS lt £1m	Rank
Cupar	1	Biggar	1
Stirling	2	Callander	2
Perth	3	Markinch	3
Blairgowrie	4.5	Alyth	4
Ayr	4.5	Dounc	5
Girvan	6	Pitlochry	6
Bathgate	7	Dunbar	7
Leven	8	Kirriemuir	8
North Berwick	9	Cupar Angus	9
Falkirk	10	Auchterarder	10
.....	...	.....	.....
Gourock	55.5	Stewarton	33
Milngavie	55.5	Kinghorn	34
Barrhead	57	B & L	35
Coatbridge	58	Tayport	36
Renfrew	59	Loanhead	37
Ardrossan	60	St Monance	38
Stevenston	61.5	Whitburn	39
Grangemouth	61.5	Monifieth	40
Pt.Glasgow	63	Newport on Tay	41
Bearsden	64	Bridge of Allen	42

FOOTNOTE (2)

SPI is related to the estimated percentage of town sales accruing to migrant custom, or the ratio of actual town sales-expected town sales to actual town sales, where expected town sales is the product of town population and regional average per capita sales; and the estimated population served in excess of town population.


Unadjusted Total Retail Sales per Inhabitant: Towns & DC 1961
Scale: 10m. : 1 in.
Source: Report on the Census of Distribution & Other Services 1961 Part 13 Scotland Table C
Town Sales: under 800(000) 800-1999
2000-4999 above 5000
(a) Returns Received
£
316
270 -315
225 -269
179 -224
133 -178
88 -132
42 -87
< 41
(b) Follow-ups
£
> 371
316 -370
261 -315
205 -260
150 -204
95 -149
40 -94
< 39

Map 3

Carnoustie, or rural as in the case of Mybole, Biggar or Forfar etc.

SALES PER INHABITANT AND THE STRUCTURE OF RETAIL TRADE.

3.26 The relation between sales and population in towns in the study area was highly variable and the range of expenditure per head was more than that attributable to income and other similar differences between towns. While Cupar recorded £341 and Stirling £289, Port Glasgow and Bearsden reached only £102 and £71 respectively. (See Table 3.9). Fleming (1954, p.98) showed these values were reconciled in 1950 by the close relation between the total population of towns and hinterlands defined in relation to weekly shopping needs and total sales in towns in that year. Goodness of fit tests revealed the distribution of SPI values from the study area was bimodal and non-normal. (Table 3.12). Average SPI was less in towns of under £1m. sales size than in towns with over £1m. sales. But while on average these smaller towns attracted less migrant custom than larger ones, most of the growth in SPI with increasing town size was confined to the group of smaller towns, where migrant custom formed a portion of the growth in total sales. (Table 3.11). The association between SPI and town size for the group of towns over £1m. sales size was statistically insignificant and very much less than that between town size and the percentage of sales through non-food outlets, where the "periphery effect" was less strong. (See McClelland, 1966 p.193).

3.27 SPI was reflected in other measures of retail structure. An index of the extent of tertiary activity in each town, the percentage of rateable values in commercial subjects, became available for the first time in 1963-64, when values ranged from 29% in Glasgow and Stirling to 6% for Grangemouth, and the rank association with the level of SPI was highly significant. SPI was also associated with the percentage level of employment in MLH Retailing (1961) in the 39 Local Authority areas with populations of more than 10,000 in the study area for which that return was available. There is a strong association between the percentages employed in retailing, SIC Order Distribution and tertiary sector employment in general. This relationship was stronger than that between the workforce

Table 3.10a Percentage Composition of Retail Trade by Total Sales Per Inhabitant Central Scotland. 1961

Kind of Business	Sales per Inhabitant All Towns. 60-89	90-119	120-149	150-179	180-209	210-239	Gt 240
1	45.8		36.4	33.1	32.1	31.6	294
2	23.8		23.2	27.2	20.5	20.5	21.4
Total Food	69.6		59.6	60.3	52 6	52.1	50.8
3	13.7		12.5	10.3	9.5	10.3	9.9
4	8.8		11.8	11.8	14.9	13.5	17.2
5		9.7	8.3	9 3	11.2	10.7	10.8
6		5.6		5.9	6.3	72	
7	-	-	10.8		13.1	146	
Total N-F	27.7		40.4	39.7	47.4	47.9	49.4
	TSS g.t. 1£m						
1	41.6		36.2	29.6	27.2	29.0	26.1
2	23.5		20.5	25.8	20.2	20.7	20.0
Total Food	65.1		56.7	55.4	47.4	49.7	46.1
3	12.7		11.0	9.9	9.5	10.0	8.3
4	9.0		11.7	12.8	16.4	14.5	17.7
	TSS l.t. £1m						
1	47.8		36.6	38.1	42.9		35.2
2	24.0		26.2	29.0	20.8		24.2
3	14.4		14.4		10.7		13.3
4	-	10.7		10.1	10.2		16.0
Total Food	71.8		62.8	67.1	63.7		59.4

Source: As Table 3.1

Table 3.10b Sales per inhabitant (in individual kinds of business)

By town sales size Central Scotland 1961

Kind of Business	Town sales size £m. 0000-0249	0250-0499	0500-0999	1000-1999	2000-3999	4000-7999	8000-15999	gt. than 16000
1	62.7	56.6	77.6	57.6	54.3	53.2	46.7	44.1
2	55.6	33.9	46.6	43.2	38.9	32.2	36.6	30.5
3		23.4	22.5	19.5	16.2	16.7	16.6	16.9
4		15.8	25.8	24.6	25.7	27.1	42.1	35.7
5	-	14.5		16.9	20.4	18.2	26.2	20.4
6	-	-	11.1		11.1	15.3		20.5
7	-	-	-	-	25.8	20.7	28.8	28.0

Source: As Table 3.1

variables and the proportion of sales through non-food outlets. Migrant custom evidently exerted some pull on the shape of the local workforce.

3.28 Table 3.10 throws some light on the way in which the composition of sales varied with the overall level of SPI. Food sales declined systematically with increasing SPI, sales by confectioners to a less marked extent. In contrast the proportional importance of clothing and footwear sales doubled, and those in kinds of business 6 and 7 also rose over the range of SPI values. Towns with high levels of SPI concentrated on non-food sales; Table 3.10b shows why. The range of expenditure in each kind of business varied considerably, widest for clothing and footwear shops and least in the food trades. Peak expenditures per capita were made at different town sizes. Migratory custom was concentrated in certain goods but the nature of the relationship between the overall level of SPI and its specialised components differed between large and small towns. In towns of over £1m. sales size there was a closer relation between SPI and the percentage of non-food sales compared with towns of under £1m. sales size. ($r = +0.58$, $n=64$; $r = +0.31$, $n=42$, r Spearman's rank) Migratory custom in the larger towns concentrated on non-food outlets, and in the case of small towns on food dealers, exactly as prior reasoning would indicate. (See Hall et al, 1961 p. 86) The reclassification of a number of anomalous cases such as Cumnock and Holmhead (a community influenced by the mining industry with total sales over £1m., but below average non-food sales) or Dunbar (a holiday centre of less than £1m. sales, but high non-food sales) substantially strengthened this divergent relationship.

THE LEVEL OF MIGRANT CUSTOM AND SALES PER EMPLOYEE

3.29 Nevertheless, Tables 3.13 and 3.15 suggest that there was no strong linear association between the significance of migrant custom

Table 3.11 Identification of Trade Centres: Rank Correlations Between Measures

Measures	all cases (106)	TSS gt £1m	TSS lt £1m
TSS & %nf	+0.66	+0.58	+0.24
" & SPI	+0.30	+0.12	+0.36
" & RV	+0.37	+0.33	+0.22
" & %R	-0.02 (39)	-	-
SPI & %nf	+0.51	+0.58	+0.31
" & RV	+0.73	+0.76	+0.80
" & %R	+0.49	-	-
%nf & RV	+0.62	+0.70	+0.49
" & %R	+0.28	-	-
RV & %R	+0.42	-	-

Source: As Table 3.1

Table 3.12 Sales per Inhabitant and Percent Non-food Distributions

1 SPI: All towns(£00)		2 SPI: D of C		3 % Non-f: All towns	
gt 2.81	6	1.20-1.49	3	gt 64.1	3
2.48-2.81	8	0.90-1.19	11	58.6-64.0	7
2.31-2.47	6	0.60-0.89	31	55.9-58.5	4
2.15-2.30	7	0.30-0.59	23	53.2-55.8	8
1.98-2.14	7	0.00-0.29	3	50.5-53.1	9
1.82-1.97	11			47.8-50.4	7
1.65-1.81	14			45.1-47.7	8
1.48-1.65	6			42.3-45.0	7
1.32-1.47	12			39.6-42.2	6
1.15-1.32	15			36.9-39.5	9
0.82-1.14	13			31.5-36.8	25
lt. 0.82	1			lt. 31.5	13
Total	106			Total	106

Source: As Table 3.1

Table 3.13 Sales per employee by SPI Central Scotland 1961

Kind of Business	Sales per Inhabitant £ 060-089	090-119	120-149	150-179	180-209	210-239	gt 240
		all towns					
1		4.66	4.86	4.87	5.13	4.93	4.90
2		2.99	3.47	3.57	3.31	3.27	3.28
3		3.99	4.15	3.95	3.57	3.88	3.76
4		3.03	3.70	3.50	3.48	3.16	3.41
5	..	3.36	3.37	3.63	3.63	3.34	3.37
6	..		3.11	3.17	2.91		3.05
7	..	..	3.35		3.50		3.20
		towns gt £1m					
1	..	4.41	4.86	4.81			5.09
					524		
2	..	2.91	3.42	3.43			3.20
					324		
3	..	3.43	3.59	3.91			3.65
					315		
4	..			3.26			2.95
		3.41			306		
		Towns gt £1m					
1	..	5.06	4.86	4.91	5.03	4.91	4.80
2	..	3.18	3.52	3.66	3.29	3.33	3.33
3	..	4.77	4.58	3.97	3.86	3.89	3.82
4	..	3.28	3.66	3.65	3.55	3.27	3.60

Source: as Table 3.1
Note: cell number too small to calculate reliable mean

Table 3.14 Sales per employee by SPI, Districts of County. Central Scotland.

Kind of Business	1961 Total Sales per Inhabitant 000-029	030-059	060-089	090-119	120-149	150-179	180-209
1	:	477	520	510		-	-
2	-	374	396	375		-	-
3	-	362	365	410		-	-
4	-	311	365	378		-	-
5	-	-	342	386		-	-
6	-	-	279	353		-	-

Source: as Table 3.1

as measured by SPI and sales per employee. In every kind of business maximum levels of sales per employee occurred in the middle ranges of sales per inhabitant and five of the seven correlation coefficients were negative. This pattern confirmed the findings of Pollard and Hughes (1955) who found no significant association between sales per employee and SPI in a study of the 1950 data for 180 towns with a population of more than 50,000. While the largest proportional rises in explained variation occurred in the case of kinds of business 4 and 5, non-food sectors, the overall degree of explanation was again very low when sales per employee was correlated with the percentage of non-food sales and the level of SPI in each kind of business. (Tables 3.15 (a) and 3.15 (b)). This pattern was partly attributable to the fact that migrant custom was drawn almost exclusively to the central shopping area in each town and the main concentration of retail facilities. Appendix C discusses the impact on the composition of sales, size and type of outlets and the organisational structure of trade in the 14 towns in the study area for which such information was available, and there were significant differences between retailing in central areas and other parts of town. The remainder of this section discusses some alternative factors which were also important.

MIGRANT CUSTOM AND RETAIL OUTLET STRUCTURES.

3.30 The low explanatory power of SPI also arose because this variable and to an extent the volume of total sales more readily influenced the outlet structure in each town to a greater extent than the internal mode of operations within each retail outlet. It was alleged in para. 3.5 that an increased volume of sales could be met by an expansion in store size, duplication of units of the same kind and scale or the duplication of stores with increased inter-store specialisation. (See Berry, 1963 p.108). Migrant sales called forth additional retail capacity which was met by increases in the number of retail outlets rather than increases in the size of existing shops, in which shop sizes did not approximate their potential or even practical limits. The following paragraphs examine this association between migrant custom and the variety and

Table 3.15 a Correlations between sales per employee and SPI and the percentage of sales in non-food outlets

Kind of business	Sales per inhabitant, all kinds of business: All towns	Town sizes greater than £1m.	Town sizes less than £1m
1	+0.07	-0.21	+0.16
2	-0.03	-0.12	+0.02
3	-0.16		
4	-0.08		
5	+0.01		
6	-0.16		
7	-0.23		
	Sales per inhabitant, kinds of business 1-7		
1	+0.07	-0.01	+0.16
2	+0.07	+0.32	-0.08
3	-0.15		
4	+0.20		
5	+0.27		
6	-0.09		
7	-0.30		
	Percentage of non-food sales		
1	0.00	-0.13	+0.06
4	+0.18		
6	+0.08		

Source: as Table 3.1

Table 3.15 b Sales per person engaged by the percentage of non-food sales

Kind of business	Percentage of sales through non-food outlets: 20-29	30-39	40-49	50-59	60-69
1	4.97	4.87	4.93	4.84	4.91
4	3.09	3.41	3.47	3.47	3.86
6	-	2.74	3.10	3.29	3.18

Source: as Table 3.1

complexity of retail structures.

3.31 Price (1970) found that positive residuals in the relationship between the total number of shops and the total volume of sales in towns of over 50,000 population in England and Wales in 1961 were explained by reference to the extent of migrant custom. In Table 3.17 the total number of retail outlets per 1,000 population, a simple index of the numerical provision of retail outlets, was cross classified by the level of SPI and total sales in each town. There was a systematic positive association between SPI and the provision of shops in both groups of town sizes which was especially marked in towns of under £1m. sales size. This pattern was not attributable to the relationship between the composition of total sales and SPI noted in para. 3.28 for when both groups of towns were classified by the percentage of sales through non-food outlets no marked variation in the total number of shops per 1,000 population emerged. Increased migrant sales were met with more outlets; in Ayr central shopping area, for example, there were 60 women's wear, drapers and general clothing stores; in Stirling CSA 35 such outlets. In contrast the number of shops per 1,000 population declined with increases in town size, especially marked in the food trades due to the drop in the proportion of food sales in larger towns and the "periphery" effect. When store size in two key kinds of business was classified by the overall number of shops per 1,000 population found in each town (Table 3.17 (c)) there was a decrease in average store size in each case as the level of shopping provision increased, which was possibly most marked in the case of towns of more than £1m. sales size.

3.32 This pattern was probably associated with a process of replication by retail outlets due to technical constraints on the size of each shop and the organisational structure of trade which prevailed in trade centres. (See para. 4.23). With the detailed trade classification of the 1950 Census several indices of retail specialisation may be constructed but in total specialised outlets accounted for a very small percentage of retail sales in any market centre. (McClelland, 1966 p.209). Differences between outlets in these centres were mostly qualitative differences, real or imagined, which arose from a combination of differences in the

Table 3.17a Variation in Shops per 1000 population by Town Sales Size Central Scotland 1961

	Town Sales Size £000							
	000-249	250-499	500-999	1000-1999	2000-3999	4000-7999	8000-15999	over 16000 towns	all
all kob	22.6	13.3	15.5	12.5	11.4	8.7	9.9	9.0	13.1
grocers	5.3	3.6	4.0	2.9	2.7	2.0	2.2	2.1	3.4

Table 3.17b Variation in Shops per 1000 population By Total Sales per Inhabitant

	Total Sales per Inhabitant £00						
	060-089	090-119	120-149	150-179	180-209	210-239	gt 240 towns all
				TSS gt £1m			
all Kob		7.8	8.2	10.1	10.9	16.8	14.4 11.3
				TSS lt £1m			
all kob		11.8	12.6	16.3	16.8	20.7	25.8 15.7
				all cases			
all kob		10.4	10.3	12.6	12.3	16.9	18.2 13.1

Table 3.17c Variation in Sales Size of Shops by Shops per 1000 Population (all kob)

	Overall Number of Shops per 1000 population					
	lt 8	9-11	12-14	15-17	18-20	gt 21
			Grocers and Provisions Dealers			
TSS gt £1m.	24.0	22.1	21.8	20.9	19.4	-
TSS lt £1m.	-	19.7	16.0	-	14.8	16.8
all cases	23.6	21.4	18.9	21.0	17.1	16.1
			Clothing and Footwear Shops			
all Cases	-	16.5	11.7	11.5	9.3	7.3

Source: As Table 3.1

product sold and the conditions around its sale (Garner, 1966 p.117) and though the "quality" of retail outlets is obviously an important element in the minds of both retailers and customers (Gornwall, 1953 p.207) the level of retail service is very difficult to measure. (McClelland, 1966 p.231). To the extent that shops in higher order kinds of business offered a higher level of service in centres attracting migrant custom than similar shops in lesser centres the labour input per unit sold probably increased and sales per employee fell.

D INCOME PER CAPITA AND SALES PER EMPLOYEE.

INTRODUCTION.

3.33 The level of per capita income affects the level of expenditure, the size of individual transactions and also the importance of car ownership and consumer travel habits; and on all these counts a positive relationship between income per capita and sales per employee was expected. In the short run higher levels of expenditure are accommodated in existing facilities so that store sales sizes rise. Analogous to economies of long production runs in manufacturing the size of each individual transaction is increased and in this way a smaller number of customers is required to reach a given volume of sales-and less labour per unit sales is necessary. Wealthy customers tend to be more mobile customers, one of the effects of which is to reduce local market imperfections. (George, 1966 Chapter 5). In the longer term R.L. Davies suggested establishments in low income areas embrace a wider range of functions than their counterparts in high income areas and greater functional diversity was to be found in low income areas, with many more separate retail and service outlets relative to population. In high income areas establishments were more specialised and larger shopping centres appeared more highly developed. (Davies, 1968).

THE ANALYSIS.

3.34 The results of all surveys of personal income in Britain are published on a severely restricted scale and indirect surrogate

measures of income have been widely adopted in the past. Additional difficulties attach to the greater propensity of high income groups to shop in areas other than their immediate locality. In the shopping goods trades and at successively higher levels of the retail hierarchy an increasingly mixed market is served (Davies, 1968 p.153) in which it is difficult to attribute aspects of retail performance to the influence of local levels of income per capita. Finally, income is only one of a number of population characteristics which has an effect on the structure of retailing. Social and cultural influences, occupational structure, age and sex structures are additional influences which empirical surveys of shopping behaviour have shown to be significant in this respect. (Bird & Co., 1961 etc.).

SURROGATE INCOME MEASURES.

3.35 These measures should be applicable at town level, refer to the people who shop there and reflect as closely as possible their standard of living and expenditure. Alternative indices include rateable value formulae, jury statistics and the ownership of key consumer durable products such as cars (George, 1966) and telephones. (Wilkins, 1952 p.31). The ratio of car licenses per household is published in the case of only 9 burghs and cities in Scotland, (see Sleeman, 1961 and 1969) and the proportion of households with private telephones may be calculated only on the basis of Post Office exchange areas. Another set of proxy measures relates to the economic status of a district, and it has been shown that social class composition is one of the best single measures of economic status available. The measure adopted in this study draws its validity from two pairs of empirical relationships found in the Family Expenditure Survey and Census of Population. There is a strong positive correlation between the average number of persons in a household and the weekly income of each household and a negative relation between the socio-economic status of a town and the average number of persons per household in that area. W.R. Cox constructed a single measure of the income level prevailing in each town by attaching equal weights to (a), the percentage of occupied and retired males in the professional and managerial categories XXIV and XXV and (b), persons per

household (both indexed at 100 by the regional average for each measure) in the form:

$$\text{index} = \frac{(a + b)}{2}$$

3.36 Table 3.19 presents the rank correlations between Cox's income measure and some alternative indices of prevailing income levels discussed in the literature. Most of the large burghs in Central Scotland fell at the lower end of each distribution. All these distributions were markedly non-normal with positive skew which logarithmic transformation only partly eliminated. Nevertheless the degree of mutual association, excepting the reciprocal of the infant mortality rate, was generally high.

SALES PER EMPLOYEE AND THE LEVEL OF INCOME.

3.37 At the national and regional scales high income levels have been associated with high levels of sales per employee in the shops. The rank associations between Cox's income measure and levels of sales per employee in the present study area indicate that the relationship between these variables was probably more complex than this simple picture implies. (see Table 3.20) In the cases of all but one kind of business the associations were negative. Secondly, the degree of consistency in the association between sales per employee and Cox's income measure between the three town size groups shown was generally low. Isolation of the most marked cases of deviation from the hypothesised positive relationship revealed that two opposing forces were probably at work.

3.38 It will be shown in Chapter Four that co-operative organisations were strongest in lower income areas and conversely, that independent grocery establishments were numerically important in high income areas. The best available predictor of the importance of co-operative sales in towns where data was available was the social class composition of each town. Consequently, it may be inferred that in some towns low on income rankings such as Clydebank or Motherwell and Wishaw strong co-operative retailing raised sales per employee above the level expected on a basis of the income level alone and conversely, in high income towns such as Gourock,

Table 3.19 Some Surrogate Income Measures

1 W.R.Cox's measure (1961) 111 cases

2 Reciprocal of Infant Mortality Rate, average 1958-61 64 cases

3 Per capita rateable value in non-industrial subjects, 1963-64 111 cases

4 Percentage of dwellings privately owned 1963-64, 111 cases

	TSS gt. £1m	TSS lt. £1m
TSS & 1	-0.37	-0.07
" " 2	-0.14	na
" " 3	-0.06	-0.14
" " 4	-0.03	-0.45
1 & 2	+0.34	na
" " 3	+0.61	+0.66
" " 4	+0.56	+0.53
2 & 3	+0.29	na
" " 4	+0.23	na
3 & 4	+0.73	+0.71

Sources: Census of Distribution 1961; Census of Population 1961; Rates and Rateable Values 1963-64; Annual Report of the Registrar General Scotland 1959-62

Table 3.20 Sales Productivity and Income: Rank Correlation Coefficients

Kind of Business	TSS gt. £3m		TSS gt. £1m		TSS lt. £1m	
1	-0.29	23	-0.30*	64	-0.24	42
2	-0.12	23	-0.36**	64	-0.26*	42
3	-0.14	23	+0.05	64	-0.58**	27
4	-0.05	23	-0.22	64	-0.19	27
5	-0.53*	20	-0.41**	62	-	
6	-0.46*	20	-0.13	35	-	
7	-0.21	20	-		-	

Sources: As Table 3.1 and Census of Population 1961

* significant at a=0.05
** significant at a=0.01

N. Berwick, Rothesay, Helensburgh and St. Andrews the importance of independent retailing resulted in levels of productivity lower than expected. These observations do not explain why the associations between income and sales per employee varied between individual kinds of business, which is probably attributable to the operation of other factors such as town size etc., nor indicate the quantitative importance of this "organisation effect".

3.39 Had Central Scotland included some towns enjoying mass high income levels, as was the experience of motor manufacturing centres of the West Midlands in 1961, a systematic and positive association between income and sales per employee might have emerged. Such industries were lacking in Central Scotland then. It may be argued that in these circumstances increased income had traditionally caused a swing away from mass retail outlets, particularly in the case of those communities where local retail structures were composed of only co-operative and independent outlets. In this case higher income levels tended to result in a fragmented market with increased specialisation, a wider variety of stores and possibly lower productivity levels. The relationships between income levels and sales per employee were as much a matter of consumer habits and loyalty as higher income levels working through car ownership ratios, increased mobility and changed shopping patterns. (See McClelland, 1966 p.185).

SUMMARY.

3.40 In this chapter the relationships between the total volume of sales in each town, the importance of extra-town sales, the level of consumer income, sales per establishment and sales per employee have been discussed.

1. The volume of retail sales in each town was a useful guide to the type of local outlet structure and the characteristics of shops differed in centres of different size, though there were marked differences between the convenience goods and shopping goods trades. In the food trades size of shop and sales per employee were positively associated with the volume of town sales up to towns of £1m. sales; while in the shopping goods trades, exemplified by clothing and footwear shops where 35%

of the variance in sales per employee was explained by size of shop and town size, this rise continued through most town sizes. Central shopping area sales were particularly important in this context. (See Appendix C).

2. Sales per inhabitant, a measure of the level of migrant custom and therefore how towns of different types and sizes competed with each other, was closely related to the replication of outlets in the food trades, and diversity and qualitative differentiation between outlets in the non-food trades. But labour was no more intensively used in centres which attracted migrant custom than elsewhere.

3. The effects of consumer income levels on sales per employee were overshadowed by the effects of town size and variation in the organisational structure of retail trade with variation in income levels.

APPENDICES TO CHAPTER THREE.

A DATA FOR DISTRICTS OF COUNTY.

A.1 Attention was drawn to the non-normal SPI and percentage of non-food sales distributions. However, as only the data for the upper half of the whole distribution of towns and their catchment areas has, in effect, been considered the question arises whether the inclusion of areas which export retail custom to towns would alter the findings discussed in paragraph 3.29. Unfortunately the only data available from Census sources referring to rural areas and small settlements was that for Landward Areas or Districts of Counties, amalgamations within Local Authority boundaries of all non-burghal settlements. The number of such cases in the study area varied from 71 for grocers and provision dealers (1) to 1 for general stores (7). Statistical averages based on these areas have only limited meaning and utility when framing or testing hypotheses.

A.2 The distribution of SPI was unimodel around class (60 - 89), a lower level than that of the towns. But once again the highest levels of sales per employee occurred in the intermediate SPI ranges. The pattern found in Table 3.13 was not substantially affected by pooling returns relating to towns and Landward Areas.

B THE SPATIAL ORGANISATION OF TRADE CENTRES.

B.1 The use of rank and product moment measures of association assume that measures of continuously defined relationships are more appropriate than those which exploit breaks and groupings in distributions. In this chapter measures of simple linear association and uniform and arbitrary class intervals for tabulations were applied throughout and it remains to discuss whether the proposition of a hierarchial arrangement of market centres constituted a better deductive base from which any regularities or patterns in trading arrangements might be more readily discerned or more efficiently tested. The advantages of being able to use "natural" classifications and taxonomies are clear. While admitting the relation between town and country was not a simple one Fleming and Green (1953, p.2) considered "the main characteristics of most towns

in Scotland can be recognised as belonging to one or the other of the orders of a ..... fairly definite hierarchy." Thorpe (1968, p.175) concluded that the division between grades in his seven fold hierarchy presented few problems in Scotland.

B.2 In the present context these views overlook several difficulties and a standard view is that while a hierarchical series is most realistic there are considerable empirical problems involved in distinguishing the various ranks from each other. The available Census data refers to only some of the variables commonly used to define central places and only some of the settlements in the area, and in these circumstances there is a danger of oversimplifying the real state of affairs. In addition the present study included among its aims the examination of systematic relations between variables such as town size and migrant custom which are most appropriately examined in well defined functional relationships which a general hierarchy based on multifactor criteria would mask.

B.3 Nevertheless the diagnosis of a general pattern among trade centres would considerably simplify matters. While defined only on the basis of visual and tabular examination of single and bivariate distributions of town size, SPI and the percentage of sales through non-food goods etc., this was not the case and the use of breaks did not simplify patterns of variation in sales per employee nor produce consistent groupings of towns. In a densely populated and industrialised region like Central Scotland this was perhaps hardly surprising.

C THE IMPORTANCE OF INTRA-URBAN RETAIL STRUCTURES.

C.1 Chapter Two indicated circumstances where town aggregates of establishments were of only limited validity and listed a variety of retail conformations which may be distinguished in urban areas. Most of the migrant custom from outside town boundaries came to the central shopping area in each town, especially in the shopping goods trades. The Board of Trade recognised 19 CSAs in 14 towns in the study area, part of 270 such centres in Britain as a whole in 1961. This dichotomy says nothing about the differences between old and new centres, planned and unplanned facilities and in particular provides no opportunity to examine the hierarchy of intra-urban

Table 3.16 The Structure of Retailing in Central Shopping Areas Central Scotland 1961

	CSA	ROT	
Sales Composition %			
1	12.7	37.8	
2	11.5	23.4	
3	5.0	13.0	
4	20.4	8.1	
5	17.5	6.6	
6	7.9	4.3	
7	23.1	7.5	
Total (19,14)	37.1	49.0	
Organisational Split			
Cooperatives	14.9	29.2	
Multiples	47.8	19.5	
Independents	37.3	51.2	
Establishment Size £000			
1	43.7	19.5	
2	21.6	14.0	
3	15.1	11.4	
4	33.5	11.8	
5	35.6	17.8	
6	20.8	9.3	
7	422	106	
Sales Productivity £000			Margin %
1	510	4.88	104
2	3.24	3.49	93
3	5.17	4.26	121
4	4.03	3.13	129
5	3.80	3.34	114
6	3.31	2,99	111
7	3.38	3.66	92

Source: As Table 3.1

centres shown to be of importance in other contexts. (Simmons, 1964 p.62). The functions performed in a concentration of retail activity are a more valid basis for delimiting such areas than the Census definition which was based upon the spatial form of the concentration and which has been widely questioned. (Thorpe, 1968 p.170). The Board of Trade claimed the proportion of total town sales made in CSAs was unlikely to be significantly affected by the precise location of boundary lines (BOTJ, 17 Jan. 1964, p.84) but Eve & Co. (1971, p.15) defined a "regional core" within Glasgow's CSA where food retailing, for example, produced only 2% of total sales in 1961.

C.2 Subject to these reservations there were several well defined differences between CSA and ROT areas which in part are attributable to the effects of migrant custom and which were partly hidden at the town level of aggregation. (See Thorpe, 1968). An average of 37% of total town sales were made in CSAs in the study area, though if only Princes St. CSA and Central SA were distinguished in Edinburgh and Glasgow respectively this proportion rose to 49%; highest in Stirling and Ayr, towns with a high level of sales per inhabitant and traditionally important market centres, and lowest in Motherwell and Clydebank, both towns where co-operative retailing was strong. Thorpe considered that the organisational characteristics of CSAs among their most striking traits. (1968 p.186). In the study area only 17% and 21% of co-operative and independent sales arose in CSAs which were dominated by the activities of multiple retailers; a pattern attributable to both the locational policies of multiple retailers and the composition of goods sold in CSAs. Suburban trade was of greater importance to grocery and provisions dealers, other food retailers and confectioners etc. and less than 27% of grocery and provisions sales were made in CSAs in the study area against 75% for clothing and footwear outlets. (Table 3.16).

C.3 Larger stores were found in the CSA in every kind of business for establishments located there had less restricted markets and were able to grow larger than those located elsewhere, especially in kinds of business 4 and 7. (McAnally, 1965 p.194). With the exception of other food retailers and general stores these differentials were repeated in levels of sales per employee. (Table 3.16). That the level of sales per employee in grocery outlets was

only 4% higher than in rest of town areas was probably attributable to the locational policies of co-operative societies.

D A NOTE ON THE USE OF MULTIPLE REGRESSION TECHNIQUES

D.1 Experience suggests that each factor works as part of a complex of factors. Multiple regression analysis permits the joint and net explanatory power of each variable to be evaluated.

D.2 However, several of the assumptions of the classical regression model were violated by the present data set, and in such circumstances it was considered to be inapplicable. Even as a descriptive device the utility of the technique was limited, as in the case of the variables of Chapter Three, the matrix of zero order coefficients below implies. Explanatory variables such as size of market and size of establishment were intercorrelated, at a level high relative to

Correlation coefficients: kind of business no. 4
n = 94

	1	2	3	4
1. s.p.e.	-	+0.35	+0.20	+0.57
2. log(sst)		-	+0.31	+0.78
3. SPI (4)			-	+0.55
4. s.s.e.				-

the overall degree of multiple correlation among all variables being considered simultaneously. Among the variables of Chapter Four the number of available cases varied between each variable in such a manner as to render the application of the technique impracticable.

CHAPTER FOUR. THE ORGANISATIONAL STRUCTURE OF RETAIL TRADE.

A INTRODUCTION.

4.1 Each basic type of retailing organisation has its own history, methods of control, locational policy and practice, financial resources, and pattern of performance. The present chapter has three aims. Firstly, it shall establish that each type of retail organisation has a distinctive locational pattern both between regions and within the study area, which may be related to several hypotheses about the performance of these retailers and general environmental conditions. Secondly, it will be shown that each type of retailer has a different approach to retailing, with the result that levels of productivity, size of establishment and so on vary systematically between each type. Finally, by relating these two sets of findings together, an attempt will be made to explain spatial variation in the level of productivity and size of store in each town in the study area.

4.2 To simplify matters the discussion was conducted only in terms of the grocery and clothing and footwear trades, the two largest single kinds of business in 1961. One kind of business sells mainly convenience goods bought frequently and repeatedly with a minimum of effort on the part of consumers, the other shopping goods for which the consumer expects to travel to more distant shopping centres in order to compare quality, design and price. The two trades contrast in locational patterns. While in both the balance between sales penetration by multiples, co-operatives and independent retailers is fairly close and marginal differences between each in towns is likely to be important, differences in performance between these organisations are clear cut and wide.

4.3 The Census authorities recognise 'independent', 'co-operative', and 'multiple' chain retailers, though this classification was an oversimplification for even by 1961 voluntary group trading (to be defined in paragraph 4.6) was of considerable importance in the food trades and affiliated retailers differed from non-affiliated retailers in several respects. Nevertheless, on the basis of this three-fold division differences were marked with respect of product mix, pricing policy, control over constituent branches, and in

particular the extent to which each retail organisation enjoyed internal economies of scale of buying, organisation and technique. In summarising those aspects of management and organisation which were most directly relevant in explaining the pattern of location and level of efficiency obtaining in each organisation in 1961 the following listed points are relevant.

CO-OPERATIVES.

4.4 1) Each society was autonomous, independently owned and operated, and functioned in a specified area. The degree of coordination between neighbouring societies or federal organisations was low and the structure of co-operative retailing fragmented and unordered.

2) There was no competition, overlapping or duplication of facilities by agreement between neighbouring societies. Nevertheless trade areas conformed to neither natural nor Local Authority boundaries and any one town may have had one or more societies active there, or be served from another town. Accurate estimates of each society's trading areas are not generally available. As examples, only 67% of Alloa Co-operative Society's trade was carried out in that town, and Rutherglen Society's turnover derived equally from Rutherglen and East Kilbride in 1961.

3) Societies varied widely in size and the majority were probably too small to gain any benefits from economies of scale. (Co-operative Independent Commission, 1958 p.87). Co-operatives tended to share many of the costs of large scale retail organisations and relatively few of the benefits.

4) Societies specialised heavily in the sale of foods and the numbers of specialised branches in any one other kind of business were small.

5) Societies reached decisions independently of one another on the vital matters of investment policy, renewals and development. Co-operatives in Scotland had no explicit pricing policy, pursued generally sub-optimal locational policies, and extraneous social considerations ranked high in both policies.

6) Co-operative sales stagnated in the post war period leading up to 1961.

MULTIPLE CHAINS.

4.5 1) Multiple trading represented a deliberate attempt to overcome the limitations placed on sales in any one kind of business by the size of local demand by maintaining branches in different localities and thereby gaining all the available economies of scale.

2) Multiples had removed from the individual establishment all the activities which were more efficiently performed centrally and on a larger scale. Control was centralised in comparison with other retailers.

3) Multiple operations were generally uniform and standardised.

4) Multiple retailers were financially strong, possessed powerful bargaining power for sites, for example, and were able to employ capital-intensive selling techniques which enabled important advances in technique to be realised.

5) These retailers traditionally made use of their advantages in competition by price appeal. They also employed discriminating and flexible location policies. Having concentrated on setting up branches in the best sites, they were often in a strategic position to influence the local pattern of sales.

6) Multiple trading expanded rapidly during the post war period, at the expense of both the co-operative and independent sectors.

INDEPENDENTS.

4.6 1) The independent sector was overwhelmingly composed of small shops, the majority employing under 3 or 4 persons and constituting the high proportion of small units which characterised retailing as a whole in 1961.

2) Small traders derived strength from advantages such as proximity to consumers' residences, and the provision of facilities such as personal service and flexible hours.

3) Partly as a result independent retailers had a distinctive locational pattern. The multiplicity of small independent retailers meant a multiplicity and ubiquity of shops.

4) Independent retailers were operating under fundamentally different economic criteria, which included social and personal considerations, from those of the other retail sectors. (Levy, 1948 p.201).

5) Voluntary chains acquired considerable importance by 1961, chiefly in the food trades. To a certain extent, these groups of independent retailers were copying aspects of large scale organisations. Sales per employee and per square foot of sales space had risen under the stimulus of certain agreed reciprocal responsibilities and the provision of a host of specialised services by the central authority. These groups were composed of larger than average independent retailers.

6) Independent retailing tended to lose ground in the post war period, though there was considerable variation between kinds of business and types of establishment within this sector in the rate of decline.

SALES PER EMPLOYEE AND SIZE OF ESTABLISHMENT BY ORGANISATION.

4.7 Two aspects of the organisational structure of the grocery and clothing and footwear trades were of particular importance in the present context. The relative market penetration, or share of total sales by each organisation varied between kinds of business. In every kind of business independents owned the greatest proportion of retail establishments in 1961, and with the exception of clothing and footwear and general stores by a lesser margin, the largest proportion of sales also. Multiples held the largest share of sales in those two kinds of business. In Scotland the national position in the grocery trade was reversed and co-operative societies' sales exceeded those of multiples. (See Tables 4.2 (a), (b)).

4.8 Sales per employee and establishment size varied widely between organisations in each kind of business. Co-operative food stores were traditionally largest but on a basis of returns received from the 1961 Census multiple grocery stores were 7% larger than the average co-operative grocery store. Both were more than three times the size of the corresponding independent unit. Among clothing and footwear stores multiple establishments were over four times the size of the average independent store and 66% greater than the size of comparable co-operative outlets. Sales per employee broadly reflected this pattern; in grocery and provisions outlets co-operative sales per employee were 9% more than the multiple level, and 39% more than independents of less than 5 branches. In clothing and footwear outlets

Table 4.1 Sales per employee and size of establishment by retail organisation Great Britain 1961

Kind of business and organisation		SSE £000	SPPE £000	SPPE, margin over Independents, 1
Grocers and provisions dealers	Co-ops	35.1	5.99	139%
	Mults,1	37.6	5.50	128
	Mults,2	39.1	5.50	128
	Ind ,1	10.2	4.31	100
	Ind ,2	10.5	4.35	101
Clothing and footwear shops	Co-ops	20.8	4.12	137
	Mults,1	34.5	5.25	174
	Mults,2	41.7	5.41	180
	Ind ,1	8.8	3.01	100
	Ind ,2	9.1	3.10	103

Source: Table 6, p.1/26 Establishment Tables Part 2 Census of Distribution 1961

Note: 1 Multiple organisations and independent retailers of 5 and more (less than 5) branches.
2 Multiple organisations and independent retailers of 10 and more (less than 10) branches.

Table 4.2a Retail trade by organisation and standard statistical regions 1950, 1961 and 1966 Great Britain and Scotland

Region	Co-operatives		Multiples, 2		Independents, 2	
	Percentages of regional establishments (1) and sales (2)					
1950	(1)	(2)	(1)	(2)	(1)	(2)
G B	5.0	12.0	10.7	23.5	84.3	64.5
Scotland	9.2	20.1	10.6	18.1	80.2	61.8
1961						
G B	5.1	10.7	11.7	28.9	83.3	60.3
Scotland	9.9	17.6	10.9	24.2	79.2	58.2
1966						
G B	5.3	9.1	14.6	35.0	56.4	80.1
Scotland	10.2	14.8	13.5	28.5	56.6	76.3

Source: Table 9, p.100 Vol 2 Retail and Service Trades, General Tables Census of Distribution 1950
Table 8, p.1/42 Vol 1 Census of Distribution 1966
Table 83, p.92 Digest of Scottish Statistics no. 37 April 1971

Table 4.2(b) Grocery and Clothing trades by organisation Great Britain and Scotland 1950, 1961 and 1966

Trade & Region	Co-operatives %est	Co-operatives %sales	Multiples, 2 %est	Multiples, 2 %sales	Independents, 2 %est	Independents, 2 %sales
Grocery						
GB: 1950	8.6	24.2	11.9	21.9	79.5	53.9
1961	9.3	20.7	10.7	26.7	79.9	52.6
1966	10.4	16.7	11.4	36.3	78.2	47.0
Scotland						
1950	14.8	37.4	13.9	16.5	72.3	46.1
1961	16.6	33.0	10.3	17.8	73.2	49.1
1966	19.6	28.8	11.2	24.5	69.3	46.7
Clothing						
GB: 1950	3.2	6.3	13.3	33.5	83.5	60.2
Scotland						
1950	7.4	14.4	14.9	28.4	77.7	57.2
Clothing & Footwear						
GB: 1961	3.0	4.3	16.2	46.6	80.8	49.1
1966	3.1	3.3	20.9	50.9	76.0	45.9
Scotland						
1961	8.1	11.8	19.6	41.6	72.0	46.5
1966	7.9	9.9	22.1	48.7	69.9	41.4

Source: As Table 4.2(a)

Table 4.3 Market penetration by organisation and town population size 1950

Town Size 000s	Great Britain Establishments %m	%c	%i	Great Britain Sales %m	%c	%i	Scotland Establishments %m	%c	%i	Scotland Sales %m	%c	%i
Food Trades												
+250	19	6	75	32	17	51	20	12	68	28	26	46
100-249	12	7	81	21	21	58	17	8	75	17	27	56
50 - 99	12	8	80	22	22	56	11	21	69	17	40	23
25 - 49	11	10	80	20	24	56	12	17	72	16	35	49
10 - 24	11	10	79	19	24	57	11	17	72	14	40	46
2.5- 9	11	10	80	18	22	60	9	16	76	11	32	57
0 -2.4	5	9	86	12	22	66	5	18	77	7	38	55
Clothing Trades												
+250	19	1	80	46	3	51	23	3	74	45	5	50
100-249	19	2	79	45	4	51	20	4	75	37	8	55
50 - 99	23	2	75	43	7	50	27	8	65	39	24	37
25 - 49	20	4	76	35	10	55	24	6	71	33	15	52
10 - 24	18	5	77	26	11	63	19	7	74	20	26	54
2.5- 9	14	6	80	15	13	72	12	9	79	12	22	66
0 -2.4	6	7	88	8	19	73	5	15	80	4	41	55

Source: Hall, et al 1961 Tables 63, 64, 79, 80, 91, 102, 103 using weights in 96, 97, and 98.

multiple sales per employee were 74% greater than the level obtained in independent outlets. (See Table 4.1).

4.9 In part these differences reflect variations in the size of central staffs, the commodity structure of sales, (McClelland, 1966 p.78) and opening and staffing practices on the part of co-operatives which give a slightly misleading picture of the efficiency of each organisation. (Roberts, 1955 p.80). On the other hand, these returns do reflect certain real differences in retail practice, superimposed upon effects attributable to average relations between size and productivity working across all retail trade, and which have received attention from economists for some time.(1)(Carr-Saunders, Florence, Peers 1937 p.367). The final section of this chapter will examine whether these aspects of retail performance in association with the market penetration of each organisation influenced the overall level of sales per employee and so on in each town.

B THE ORGANISATIONAL STRUCTURE OF RETAIL TRADE: NATIONAL AND REGIONAL PATTERNS.

4.10 In 1961 83% of all retail establishments were independent, 12% multiple and 5% co-operative. Turnover shares were respectively 60%, 29% and 11%, reflecting the variations in establishment size outlined in para. 4.8. (See Table 4.2 (a)). Retailing was still the province of the independent concern with seven times as many establishments and twice the sales of multiple traders; and with rarely under 80% of all establishments, independent traders were dominant in every region. Even in 1966 independents rarely controlled less than 60% of total sales in any region. Significance attaches to the cases where multiple or co-operative organisations had succeeded in interrupting this pattern. As measured by the proportion of total retail sales in 1961, co-operative trading was strongest in the Northern, Scottish and N. Midland regions and weakest in London and the S.E. Multiple activity reached a peak in Greater London, followed by the remainder of London and the S.E. and Southern regions with over 25% of regional sales in 1950 and around 40% by 1966. It is in these areas that independent activity had retreated.

4.11 Scotland emerged with a distinctive position as a centre of

(1) See, for example, para. 5.24-5.26

co-operative retailing in each Census. Table 4.2 (a) and (b) shows that as a result multiple and independent sales penetration fell below national average levels. As in the case of Great Britain as a whole, however, sales penetration in the grocery trade was very much higher than that obtained in the clothing group. This imbalance was repeated in the cases of other kinds of business. These patterns were directly attributable to the economic and social circumstances of the region, the context and details of which will become clear in the next section.

C THE ORGANISATIONAL STRUCTURE OF RETAILING WITHIN SCOTLAND.

CO-OPERATIVE SOCIETIES.

4.12 With sales of over £13m. St. Cuthbert's (Edinburgh) was the largest co-operative society in Scotland in 1961, followed by Glasgow South with nearly £9m. sales, volumes equivalent to the total retail trade of towns of the size of Dunfermline, Falkirk or Kilmarnock. Tables 5.3 and 5.4 reveal that the majority of retail societies operating in Scotland were much smaller and, in terms of average membership or sales, smaller than those in the U.K. as a whole. Scotland had both proportionally fewer very large societies (more than 10,000 members) and fewer very small societies (with less than 999 members), and the bulk of the retail societies lay in the lower and medium size classes in comparison with their southern counterparts. Over 160 separate societies were trading in Scotland in 1961. At that date there were no 'regional' societies and co-ordination between societies and with central organisations such as S.C.W.S. was undeveloped. During the decade from 1950 10 different retail societies were trading in Glasgow, for example, with 3 in Edinburgh and 2 in Dundee.

4.13 It partly followed that the movement's greatest impact lay in small rather than large markets and it was the exception for retail societies to do very well in large cities. The data in Table 4.3 confirms food establishments and sales were of greatest proportional significance in the medium and very smallest town size groups in 1950, where sales penetration reached levels over 40%. With very much lower market shares co-operative clothing establishments and sales displayed almost exactly the same pattern in Scotland; in

Great Britain as a whole the decline of co-operative clothing establishments and sales with increasing population size was even more pronounced and regular.

4.14 The 1961 Census data shows co-operative societies took only 9% of total sales in Glasgow, exceptional in a city of its type and class composition. Indicative of the gaps in co-operative trading performance and fragmented trading structure in the city had been the failure to establish a single large department store in the C.S.A. which survived into the post-war period. Elsewhere penetration was lowest in Ayr, with 6% of total sales, and highest in Buckhaven and Methil (53%) and Clydebank (40%). The second salient point of the co-operative locational pattern - an unevenness and variability of impact - even within a region where co-operative retailing was strong, is clear. For unlike multiple grocers where their pronounced locational pattern may be ascribed to policy or historical growth from core areas, the variable strength of co-operative retailing reflected fairly fundamental environmental differences within the study region.

4.15 Details are given in the appendix to this chapter of the derivation of two alternative measures of co-operative retail strength. The three sets of measures strongly supported each other. Spearman's rank correlation between SPM and Census estimates of co-operative sales strength was significant at a = 0.05 (r_s=+0.53, n = 19); and between SPM and the direct estimates at a = 0.01 (r_s = +0.72, n = 25).

4.16 Using these estimates of the importance of co-operative retailing Tables 4.4 (a), (b), (c)summarise the co-operative location pattern at the town level of aggregation in terms of the variables of Chapter Three. Peak levels of SPM occurred in towns of less than £1m. sales size, whereafter increasing town sales size was associated with decreasing co-operative strength; taken separately the negative rank associations between market penetration and town sales size was significant at a = 0.05 for both groups of towns. (r_s = 0.53, n = 19, r_s = -0.41, n = 25). Co-operative societies had failed to afford commensurate attention to the most important markets, in terms of volume of sales, a deficiency even more marked in non-food sales. (See para. 4.18).

4.17 There was no apparent systematic relationship between S.P.I. and Co-operative S.P.M. or market shares and co-operative strength was

Table 4.4a Retail Organisation by Town Sales Size
Central Scotland 1961

Town Sales Size £000							
0000-0249	0250-0499	0500-0999	1000-1999	2000-3999	4000-7999	8000-15999	gt 16000
Cooperative Sales per Member							
126	126	138	126	122	113	110	101
Census and Estimated Cooperative % Town Sales							
45		38		27		18	
Estimate of % Independent Grocery Establishments							
27	26	25	21	22	26	20	
Estimate of % Multiple Grocery Establishments							
3	9	8	10	6	11		

Sources: a) Cooperative Statistics for 1961 (Coop Union)
b) Scottish Grocery Federation Membership Lists for 1961
c) Post Office Telephone Directories, 1961
d) As Table 3.1

Table 4.4b Retail Organisation by Total Sales per Inhabitant Central Scotland 1961

Total Sales per Inhabitant £00						
060-089	090-119	120-149	150-179	180-209	210-239	Gt 240
Cooperative Sales per Member						
113	127	132	124	126	123	
Census and Estimated Cooperative % Town Sales						
33		36		27	13	
Estimate of % Independent Grocery Establishments						
22	24	25	22	33	29	
Estimate of % Multiple Grocery Establishments						
6	7	8	11	7		

Sources: As Table 4.4a

Table 4.4c Retail Organisation by Income Class
Central Scotland 1961

Log(Cox's Income Measure)						
lt 1.903	1.903-1.943	1.944-1.983	1.984-2.024	2.025-2.064	2.065-2.105	Gt 2.105
Cooperative Sales per Member						
141	119	129	128	127	125	113
Census and Estimated Cooperative % Town Sales						
51	30	28		21	23	
Estimate of % Independent Grocery Establishments						
14	16	27	25	26	30	30
Estimate of % Multiple Grocery Establishments						
6	11	9	7		11	20

Sources: As Table 4.4a

evidently weakest in centres attracting most migrant custom. For the 19 cases where census estimates of co-operative market shares were available this variable was significantly negatively associated with S.P.I. (r_s = -0.58, a = 0.01). The very existence of boundary agreements prevented co-operative societies in market centres from drawing upon the co-operative population of their entire "natural" catchment areas. S.P.M., especially in towns of over £1m. sales size, fell dramatically as the percentage of non-food sales increased, confirmed when the estimates of co-operative sales penetration were substituted for S.P.M.

4.18 Some of this decline was attributable to the negative relationship between co-operative sales and town size, and the positive association between town size and the percentage of sales by non-food outlets. Yet the significance of this striking imbalance in co-operative retailing more than merely reflects the co-operative concentration on food retailing. The C.I.C. (1958 p.39) noted that a deficiency in the number of co-operative dry goods outlets was common to all regions. Most notably in dry goods the distribution of co-operative shops corresponded badly with the geographical pattern of trade. Glasgow and Edinburgh accounted for 39% of Scotland's population, more than 40% of the regional dry goods trade but co-operative non-food outlets there returned under 0.02% of the country's non-food sales in 1961. In the case of towns where Census evidence is available, in strongholds of co-operative retailing such as Clydebank and Buckhaven and Methil sales through non-food outlets accounted for only 45% and 38% of town sales while in Stirling and Bathgate, towns of roughly similar sales size, the same proportions were 64% and 60% respectively. Overall, the negative rank association with co-operative sales (r_s = -0.81, n = 19, a = 0.01) was highly significant.

4.19 Table 4.4(c) reveals an irregular decline in co-operative market strength as average income levels rise. With a highly skewed distribution of income values and uniformity of values amongst towns constituting the Central Clydeside conurbation a better relation would be surprising, but the negative relation between Census co-operative sales penetration levels and Cox's income measure was statistically significant (r_s = 0.67, n = 19, a = 0.05). In the conclusion to this chapter it will be shown that, more generally, the

socio-economic status of a town was the best available predictor of co-operative market shares in 1961. (See also paras. 3.38 and 3.39).

INDEPENDENT RETAILERS.

4.20 Independents occupied a dominant position in every population size class in Table 4.3. In Britain as a whole their importance fell with increasing population size in the food trades, a pattern repeated in the clothing trade but for a levelling off in the larger towns though in Scotland the influence of the co-operative societies was such as to break up the regularity of this decline.

4.21 The 1961 Census evidence revealed independent sales strength was not associated with town sales-size, but was positively associated with S.P.I. and Cox's income measure. Levels of penetration were highest in Perth (where more than half independent sales were made in the C.S.A.), Stirling and Kilmarnock; and least in Clydebank and Motherwell where co-operatives were active. Significantly these centres of independent strength possessed 'country town' status and directory evidence revealed that the traditional independent specialist retailer still survived in these towns and their C.S.A.s in 1961.

4.22 Table 4.4 (a) presents the results of tabulating the retail establishments of direct and affiliated independent grocers (see Appendix) by the sales-size of the town in which they were located and relating these totals to the number of grocers and provisions dealers recorded in each town by the Census. In many cases numbers in each town were small and the ratios of Table 4.4 (a), (b), (c) were calculated after these returns had been pooled. The decline in the importance of these establishments with increasing town sales-size was interrupted only by the group of towns in the sales size range (8,000 - 15,999) (Ayr, Perth and Falkirk etc.).

4.23 The highest percentages of independent grocery establishments in towns of greater than £1m. sales-size occurred in Perth, St. Andrews, Girvan and Rothesay and the lowest percentages in Clydebank, Bathgate, Port Glasgow and Lochgelly. When these establishments were reclassified with respect to sales per inhabitant there was a concentration of independents in the higher SPI ranges as the above named towns would suggest.

4.24 Table 4.4 (c) shows that independent grocery establishments were of

greater proportional importance in the more affluent towns in the region, as measured by log (Cox's income measure). One possible significance of this finding is noted in para. 3.39.

MULTIPLES.

4.25 In both 1950 and 1961 multiple retail establishments in both the food and clothing and footwear trades were by no means as widely distributed as co-operative or independent outlets. Table 4.3 shows that there was a fairly pronounced gradient in the importance of multiple food stores from the smallest town size group to the largest town size group and food chain establishments were four times more important in the retail structure in Glasgow and Edinburgh than in towns of less than 2,500 population. The gradient in sales was even more marked. The average multiple food store in Scotland was smaller than its counterpart in Great Britain as a whole and in each class percentage sales penetration was less than the British average. Multiple penetration was higher in the clothing trades; after a pronounced rise multiple clothing stores were proportionally most important in the group of towns with populations from 50,000 to 99,000, though because very large units were found in the largest cities sales were proportionally most important in that group. Once again the size of Scottish chain store was a little smaller than the national average.

4.26 Part of this intra-regional variation in the impact of multiple retailing resulted from the geographic evolution of multiple chains. Among the conurbations the greatest overall development of multiple retailing occurred in London, where in 1961 $\frac{1}{4}$ of all outlets (against 15% nationally) were controlled by multiple chains. However, in the Clydeside conurbation the corresponding figure was 23% and Gaskin (1958, Chapter II) estimated multiples controlled 20% of Glasgow's grocery outlets in 1950, 11% of butcher's shops, 33% of dairy shops and 36% of bread and flour confectionery units against average levels for all towns of over 250,000 population of 19%, 10%, 11% and 26% respectively. The growth of multiple retailing in Glasgow had been vigorous. (Waugh, A. 1951).

4.27 In 1961 the Census evidence indicated that multiple sales penetration was significantly and positively associated with both town sales size

and the proportion of sales through non-food outlets. Multiple sales were of greatest relative importance in Glasgow, Stirling and Hamilton, and lowest in Buckhaven and Methil and Port Glasgow where co-operative retailing was well-developed. The low levels of productivity which prevailed in Glasgow could not be attributed to the numerical unimportance of multiple operation.

4.28 Location patterns, and in particular the degree of spatial diffusion and concentration of branch establishments, differed widely between firms, even within the same kind of business. In the grocery trade Coopers Ltd., (15% of branch establishments in Glasgow and 19% in Edinburgh), Liptons Ltd., (19% in Edinburgh, Glasgow and Dundee) and Low Ltd., (30% in Edinburgh, Glasgow and Dundee) form one end of the spectrum; Cochrane Ltd., (64% of its outlets in Glasgow) and Curley's Ltd., (94% in Glasgow) the other end. In the clothing trades Burtons Ltd., the largest multiple tailor in Britain, had branch establishments in 17 towns in the study area, from Glasgow (£190m. sales per annum in 1961) to Rothesay (£2m. sales per annum in 1961). On the other hand, Swears and Wells Ltd. and Dunn and Co. Ltd. had outlets in only a few towns in the upper sales size ranks.

4.29 Grocery multiples were more regional than national in character while the opposite pattern prevailed in the clothing and footwear trade. The average number of branches operated by grocery multiples of more than 10 branches was greater than that in equivalent co-operative societies, but national food chains, such as Fine Fare, Safeway or Tesco, did not invade the Scottish retail market until after 1961. The ownership structure of the grocery trade in Glasgow was highly concentrated and the four firms controlled by the then Home and Colonial Group via Scottish Retail Investments owned over 380 of the 440 multiple grocery establishments in the city in 1955. In Chapter Five some aspects of the introduction of self service techniques in the grocery trade in Central Scotland will be related to the degree and type of concentration which prevailed there in 1961.

4.30 The limited spatial coverage of multiple grocery establishments in 1961 is confirmed in Table 4.4 (a) where towns of under £1m. sales size account for only 3% of those establishments included in the directory sample and multiples were scarcely competing there. Given the locational propensities of those firms most under-represented in

this sample the value for the class containing Glasgow, Edinburgh and Dundee was probably an underestimate. In any case it is clear that multiple grocers had specialised by type of market and, equally, that an urban-rural dichotomy was of some importance in this pattern. The extent to which this sample of branches was concentrated in new suburban markets is not made clear in the tabulation; East Kilbride, Clarkston, Giffnock, Bishopbriggs, Thornliebank, Newton Mearns and Kilmalcolm were all relatively high income areas where the number of multiple branches was greatly in excess of that expected on a basis of population alone. The impact of these branches on local patterns of trading was probably correspondingly high.

4.31 The proportion of multiple grocery establishments falls off steeply in the upper ranges of S.P.I., towns in which independent grocers held a strong position.

4.32 Table 4.4 (c) reveals a bimodal distribution of multiple branches with respect to town income levels. These multiple grocers were most heavily represented in the class containing the majority of central Clydeside's population and the classes containing the highest income towns, and were attracted to mass markets and the higher income towns.

4.33 Multiple clothing and footwear outlets presented a limited and well defined location pattern. No multiple outlets in the telephone directory sample were found in towns of under £1m. sales size, and the market size threshold for these retailers lay at approximately £3m., sufficient turnover for 25 establishments of all types in this kind of business. The exceptional instances beneath £3m. such as Bearsden were either high income areas, or like Lanark, market towns. These smaller markets were served almost exclusively by local and regional chains; national chains were much more frequently located in the very largest markets. In a purely numerical sense, in which no allowance is made for variation in establishment size, multiple clothing and footwear outlets most readily dominated the retail structure of medium sized markets. The highest proportions of clothing and footwear establishments under multiple control were found in Hamilton and Stirling, followed by Clydebank, Kirkcaldy, Paisley, Bathgate and Edinburgh. In those towns where the distinction had been made, the most striking characteristic of multiple clothing

and footwear outlets was their overwhelming concentration within the C.S.A. and on normal assumptions about variation in establishment size the percentage share of turnover in these areas was even higher. Towns with a lower share of multiple outlets than that expected on a basis of turnover size included Motherwell and Wishaw, Buckhaven and Methil and Port Glasgow; with lower than average income levels, strong co-operative retailing and a low percentage of sales through non-food outlets.

INTRA-URBAN LOCATION PATTERNS.

4.34 Attention was drawn to the striking differences between each organisation's location patterns across Central Shopping Areas and Rest of Town Areas in Chapter 3, Appendix C. Additional analysis of point location patterns was beyond the scope of the present study but these intra-urban location patterns possess several implications for the way in which retailers serve each market.

4.35 The multiple retailer's ability to locate in optimal sites is well known. In contrast the siting and distribution of co-operative outlets increasingly failed to correspond with the geographical pattern of retail trade through the 1950's, (C.I.C., 1958 p.40) especially in the dry goods trade, and this Commission recognised that co-operative location patterns were sub-optimal. A.P. McAnally found that co-operative organisations were usually strong (1964, p.198) in those towns in 1961 where the proportion of town sales found in CSA was less than average. Co-operative stores were often located at a distance from the centre of competition in each market of which numerous such examples may be cited from towns in the study area. These establishments were not subjected to the same competitive pressures as "high street" retailers were. Even after a decade of rapid change Nielsen evidence shows that whereas 37.2% of multiple grocery outlets were found in Board of Trade and other shopping centres, only 8.8% of the co-operative establishments were found there in 1970. Conversely small clusters and isolated shops accounted for only 24.0% of multiple grocers but 63.9% of co-operative grocery stores. (Retail Researcher, March - April, 1970 p.7).

D THE ORGANISATIONAL STRUCTURE OF RETAIL TRADE AND THE PROVISION OF RETAIL SERVICES.

4.36 This section will determine to what extent the different locational patterns and retailing practice of independent, co-operative multiple retailers combined to produce distinctive and measurable differences in the manner in which retailing was carried on. Several sets of simple relationships were tested. It was expected that between-town differences in prevailing levels of sales per employee and size of establishment were related to the market share of each type of retailer. There were two sets of forces at work. In a purely arithmetic sense a high level of market penetration coupled with a distinctive pattern of sales per employee will influence overall levels of sales per employee in a given market; and the much less tangible effects of competition also deserve consideration. In Edinburgh the leadership shown by St. Cuthbert's Co-operative Society has had a real influence on the pattern of food retailing in the city, just as Glasgow lacked such influences. More generally this function was increasingly filled by multiple retail organisations in the post war period.

4.37 Table 4.5 summarises the evidence available from Census sources for towns of over 20,000 population in 1961. Three elements in this general pattern of market relationships stand out. Firstly, fully confirming para. 4.33, markets where both the level of sales per employee and establishment size in the clothing and footwear trades were high, tended to be those with high multiple sales penetration. A large portion of the positive relationship between town size and sales per employee in this kind of business (para. 3.13) was therefore attributable to variation in the organisational structure of this activity. The special role of CSA sales in this pattern has been noted. Secondly, high levels of sales per employee in the two food trades are significantly associated with the level of co-operative sales penetration. Thirdly, high independent sales penetration is negatively associated with productivity levels in the two food trades.

4.38 In the case of the food trades the data available enabled this analysis to be pursued with a wider range of town sizes. Table 4.6 tentatively suggests that co-operative stores tended to be of greatest importance

Table 4.5 Rank associations between sales penetration and sales ratios

Towns over 20000 population Central Scotland 1961

Kind of business	Establishment size			Sales per employee		
	Co-ops	Multiples	Independents	Co-ops	Multiples	Independents
1	+0.24	-0.04	+0.28	+0.51*	-0.25	-0.45
2	+0.08	-0.30	-0.04	+0.61**	-0.03	-0.79**
3	-0.21	+0.26	-0.08	-0.08	+0.56*	-0.29
4	-0.64**	+0.64**	+0.10	-0.33	+0.61**	-0.11
5	-0.41*	+0.30	+0.14	+0.05	+0.10	-0.17

Source: as Table 3.1

Note: * sig at a= 0.05 ** sig at a= 0.01

Table 4.6 Locational patterns by organisational type Central Scotland 1961

Estimated percentage of multiple grocery establishments	Estimated percentage of independent grocery establishments, towns over £1m sales			
	0 - 14	15 - 29	30 - 44	45 - 60
	11	8	11	9
Census and direct estimated Co-op sales penetration	38	29	25	

Census and direct estimated Co-op sales penetration	Estimated percentage of multiple grocery establishments, towns over £1m sales			
	0 - 4.9	5 - 9.9	10 - 14.9	over 14.9
	36	23	20	

Table 4.7 (a) Co-op sales penetration and food sales per employee

Pooled Census and direct estimated all towns 1961

	Co-op sales penetration per cent			
	1 - 15	16 - 30	31 - 45	46 & over
SSE(1)	21.3	20.7	19.7	21.5
SSE(2)	15.9	14.0	13.8	14.4
SPPE(1)	4.83	4.83	5.26	5.69
SPPE(2)	3.09	3.30	3.40	3.75

Table 4.7 (b) Percentage of multiple grocery stores and sales per employee

	Estimated percentage of multiple grocery stores			
	0 - 4.9	5 - 9.9	10 - 14.9	over 14.9
SPPE(1)	5.21	4.91	4.75	4.74
SSE (1)	21.3	21.7	22.1	22.8

Table 4.7 (c) Percentage of independent grocers and sales per employee

	Estimated percentage of independent grocery stores			
	0 -14	15 - 29	30- 44	44 - 60
SPPE(1)	4.96	4.96	4.78	4.51
SPPE(2)	3.42	3.43	3.14	3.04
SSE(1)	19.9	20.5	19.4	18.1
SSE(2)	13.9	15.6	12.7	12.9

Source: as Table 4.4 (a)

in towns where multiple and independent establishments were of least importance in the retail structure. A lesser degree of antipathy existed between the relative importance of multiple and independent establishments, which suggests that the two sets of forces most capable of substantially raising retail productivity in the food trades - a high level of impact from the combined activity of multiple and co-operative outlets - was not likely to be found in towns in the study area in 1961.

4.39 Table 4.7 (a) confirms that the level of co-operative sales penetration was highly successful in explaining variation in sales per employee in grocers and provisions dealers. (r_s =+0.51, n = 19, a = 0.05 and r_s = +0.58, n = 25, a = 0.01) and in other food retailers (r_s = +0.61, n = 19, a = 0.01 and r_s = +0.27, n = 25 n.s.) to a lesser extent. This variable was not, on the other hand, significantly associated with sales size of establishments in these trades. Conversely, Table 4.7 (c) reveals the estimated proportion of independent grocery establishments was negatively associated with sales per employee in kinds of business 1 and 2; though once more the nature of the relationship with establishment size is unclear. This pattern held for both towns of over £1m. sales size and those under £1m. sales size, which have been amalgamated in Table 4.7 (c). It appears that the importance of multiple grocers drawn from the telephone directory was negatively associated with sales per employee, though establishment size varied in the 'expected' way. This apparently anomalous finding only partly reflected the bias in the sample; towns where multiple numerical impact was highest in 1961 were a homogenous group of high income towns such as St. Andrews, Helensburgh, Largs, Troon and Bearsden etc. where multiples probably had a specialised role reflecting the general retail structure of these areas, discussed in Chapter 3. In particular these retailers may have accommodated an element of personal service and other attractions which led to reduced levels of sales per employee.

4.40 The provision of retail services, as measured by number of grocery shops per 1,000 population, was correlated with the importance of co-operative sales and multiple and independent establishments in each town to test whether organisational structure exerted other influences on the local pattern of retailing. It was hypothesised

that high co-operative sales tended to be associated with a lower than average level of retail provision, and relatively high proportions of independent grocery establishments with a high level of retail provision. Tabulations and rank correlation coefficients revealed that while in the case of co-operative sales this supposition was in the correct direction, none of the relationships were statistically significant at the 0.05 level. On the other hand the number of grocery and other food stores were both positively correlated with the proportional significance of independent sales (r_s = +0.48, n = 19, a = 0.05 and r_s = +0.44, n = 19, a = 0.05) and establishments (in tabulation).

E SUMMARY.

4.41 In this chapter three main types of retail organisation have been identified and discussed. It was not claimed that the framework adopted in this examination was the most appropriate for such an analysis but the existance of three divergent patterns was established. In brief summary the best single predictor of the proportional importance of co-operative sales in 1961 was the percentage of males in each town in socio-economic groups 5-12 and 14-17 inclusive (r_s = +0.67, n = 19, a = 0.01 and r_s = +0.66, n = 25, a = 0.01). The structure of co-operative retailing was seriously unbalanced. Multiple establishments in both the clothing and footwear and food trades had a more restricted locational pattern than either of their competitors in which the attractions of dense urban markets and the location of the first growth of multiple retailing exerted considerable influence. Finally, even the ubiquitous independent retailer found some environments and types of location more hospitable than others. In one sense the best explanatory factors available for these aggregated retail patterns in the food and clothing and footwear trades in 1961 were still the effects of historical and social circumstance which were largely independent of purely economic considerations.

4.43 The attempts to relate these patterns to spatial variation in sales per employee and establishment size met with some degree of success. In kinds of business other than those discussed, however, data a good deal more refined than that which is presently available for

such an analysis was necessary to ensure the relevant hypotheses might be tested or refined. Given the importance of the organisational structure of retail trade revealed in this chapter the data available at a sub-regional scale remains extremely limited.

APPENDIX A TO CHAPTER FOUR.

THE DERIVATION OF ALTERNATIVE MEASURES OF THE ORGANISATIONAL STRUCTURE OF RETAIL TRADE.

A.1 The 1961 Census information on the organisational structure of retail trade at the town level is remarkably incomplete, available in the case of only 19 of the 111 towns in the study area. The Business Statistics Office has confirmed that analysis of the data for towns of less than 20,000 population in 1961 would be infeasible under the operation of the disclosure rules. Hall et al's tabulations of the 1950 returns (1961) have been recalculated to provide one indication of variations in market shares etc. by population size-class which will not, however, take account of any changes which took place from 1950 to 1961. Additional difficulties remain. Almost all Census returns at the sub-regional level refer only to 'returns received', and Census counts of small and independent retailers tend to result in substantial underestimates. This was probably true of small independents in Glasgow in 1961. (Rhodes, B. 1964 p.2). Consequently a comprehensive survey of supplementary directory sources of information was undertaken.

A.2 In order to examine the co-operative locational pattern in greater detail two other indices of co-operative strength were considered. As a general guide to the strength of co-operative retailing in each town the simple unweighted average of sales per member (S.P.M.) for each society actively trading in each town during 1961 was calculated. This measure has been used as an index of member loyalty in previous studies and has the advantage of being available for most towns in the study area. In comparison with values for societies in other regions, co-operatives were very well supported in some towns. Kirkintilloch Society returned sales of over £206 per member, followed by Lochgelly Society with £188 per member. Conversely, the average for the nine societies trading in Glasgow was £94 per member and in Ayr, Prestwick and Kilmarnock, only £84 per member, a reflection of the general state of co-operative strength and loyalty in each area. Some disadvantages of this measure include a clear correlation between a high dividend policy and sales per member, a lack of information on variations in the ratio of membership to population in each of the

societies, and an inability to account for the influence of variation in consumer income. The more valuable ratio of sales per person is only readily available for Co-operative Union regional areas.

A.3 A third and direct estimate of co-operative sales penetration was also calculated with information from the Co-operative Directory for 1957 and 1966 to locate the fixed branch establishments of all societies trading in the study area in those years, and interpolating this pattern to 1961, it is possible to isolate those towns where co-operative activity was attributable to either (i) one society trading exclusively within the Local Authority area or (ii) part of a society trading in two or more areas the total sales of which might be apportioned between each town with reasonable accuracy. For each of 25 such towns of widely different sales size but generally below 20,000 population, an estimate of the 1961 co-operative turnover was formed on this basis from Annual Statistics 1961 (Co-operative Union, 1962). Finally, by relating this figure to the total turnover reported in the 1961 Census for the same towns an approximate guide to co-operative market penetration was derived. There was likely to be a slight overestimation of co-operative sales penetration inherent in this method. Firstly, the sales of certain co-operative semi-productive activities and other services, which fall outside the scope of the Census of Distribution, cannot be excluded from the Annual Statistics totals. Secondly, mobile shop retailing, which cannot be readily attributed to any one geographic area, was of considerable importance in co-operative food sales. However, in the case of both Port Glasgow and Hamilton where comparison with corresponding Census data was possible, this overestimation amounted to only 1% and 2% of the estimated co-operative share of total town sales. Under the direct estimates the proportional importance of co-operative sales varied from 80% in the case of Prestonpans to 10% for Biggar, with an overall mean value of 36.5%.

A.4 For independent retailers in the grocery trade an additional source of information is available in the direct and affiliated membership lists in the Scottish Federation of Grocery Associations Handbook (1961). Incomplete areal coverage within the study area and identification problems associated with the nature of the retail activities being undertaken were two prime difficulties which rendered the collation of similar statistics from local directories for other

trades highly impracticable. The member establishments clearly represent only ⅛ of all independent grocery units and the validity of the measure rests on the assumption that the members are drawn uniformly from the spatial population of all independent grocers. The data refers to the traditional grocer, relying heavily on personal and counter service and a well established clientele. (S.G.F. Handbook and Scottish Grocer).

A.5 Of Supplementary sources of information available for analysing multiple location patterns the evidence from Post Office telephone directories proved most useful. From the standard trade directories The Grocer Directory of Multiples and Co-operatives in the food trades and Stores and Shops, an index of all multiple chains of 10 or more branches trading in the grocery and provisions, and clothing and footwear trades in Scotland in 1961 was compiled. The locations of all listed branches were then collated from the telephone directories. There was a bias in this source which obviously limited the value of the findings. Not every retail grocery, clothing or footwear store had a telephone in 1961; and the nature of this bias varies with the firm, the type of business undertaken and the very area under consideration. Elliot (1938 p.4) considered that only 40% of grocery stores needed a telephone, and these were high and medium class grocers of generally larger than average size with a retail business very largely what the local clientele made it. Amongst grocers the listed establishments varied from 100% (Barrs, Curley, etc.) to 30% (Cochrane) of the total number of branches operated by each firm; in the clothing and footwear trade the degree of bias was probably considerably less.

PART TWO.

CHAPTER FIVE. TECHNICAL CHANGE AND RETAILING.

A INTRODUCTION.

5.1 In this chapter evidence will be presented to show that the effects of evolution in retail methods have been prime agents in long term trends in the geography of food retailing. Several factors associated with technical change were cited in the introductory chapter; each will be described in detail below. The areas where the effects of change have been greatest will be outlined and an assessment made of the influence of environmental factors on the pace of progress in the study area. The conclusions of a study such as the present one are necessarily related to the time scale and historical perspectives initially adopted. From 1950 to 1961 the overall number of selling units and ratio of grocery establishments to population were approximately constant and evidence of radical changes in food retailing did not emerge until 1966. Particular attention will be paid to those changes which have taken place since 1961. Much of the information presented here is of a type which is not published by the Census authorities.

B THE CHANGING STRUCTURE OF RETAIL TRADE.

INTRODUCTION.

5.2 The consistent trend towards large scale and more highly structured retailing was first identified during the interwar period. (Smith, 1937 p.80). From the position of an industry overwhelmingly composed of small business units there has been an increasing degree of concentration of control in which may be included the increasing market shares of multiple retailers; growth within the multiple and co-operative sectors of larger organisations; the shift of trade away from the independent sector and the growth within the latter of membership of voluntary organisations. Consequently Tables 5.1 and 5.2 summarise only one aspect of this situation. Support for the view that structure and size offer numerous advantages to the retailer derives

Table 5.1 The Changing Organisational Structure of Retail Trade Great Britain

Total Retail	1957 estab	1957 sales	1961 estab	1961 sales	1966 estab	1966 sales
coops	5.0	11.9	5.1	10.8	5.3	9.2
mults	10.2	24.8	11.7	28.9	14.8	35.2
indeps	84.8	63.2	83.3	60.3	79.9	55.5
Food Shops						
coops	8.4	19.7	8.4	17.6	9.3	15.2
mults	10.2	20.4	11.5	25.0	14.5	33.2
indeps	81.4	59.9	80.1	57.4	76.3	51.3
Non-food Shops						
coops	1.9	4.9	2.0	4.8	2.0	4.4
mults	10.3	28.8	11.8	32.4	15.1	36.7
indeps	87.8	66.2	86.2	62.8	82.8	59.0

Source: Table 2 p.583 BOTJ 23 Feb 1968

See also Table 4.2 for Organisational Structure in 1950

Table 5.2 Rates of Change in Turnover by Organisation Great Britain

Percentage Change in Turnover

	1950-1957	1957-1961	1961-1966
Total Retail	51.7	17.6	22.8
coops	58.3	6.0	5.6
mults	72.3	37.0	49.5
indeps	43.9	12.1	13.1
Food Shops	61.4	15.5	19.1
coop	63.8	3.1	2.8
mults	78.8	41.6	59.6
indeps	55.5	10.7	6.5
Non-food Shops	44.0	19.4	26.0
coops	41.5	16.4	14.6
mults	68.4	34.0	42.9
indeps	35.7	13.3	18.3

Source: As Table 5.1

Table 5.3 Trends in Cooperative Societies, Sales and Membership

	1957 Sc	1957 UK	1961 Sc	1961 UK	1966 Sc	1966 UK	1970 Sc	1970 UK	
Socs.	181	936	165	826	150	680	100	357	
Members	1.4m	12.3m	1.4m	13.0m	1.4m	13.1m	1.3m	12.1m	
Mem/Soc	7.6	13.2	8.7	15.8	9.4	19.2	13.1	33.8	(000)
Sales (m)	153	976	161	1034	167	1108	158	1123	
Sales/Soc	843	1043	976	1252	1112	1598	1575	3147	(000)
Sales/Mem	111	79	113	80	119	85	120	95	(£)

Sources: Annual Statistics for 1957,61,66,70 Coop Union

from the fact that large scale organisations have consistently drawn ahead of small scale organisations. The nature of the improvements in retail efficiency and other consequences which have derived from post-war changes in the organisational structure of retailing are outlined below.

MULTIPLE RETAILING.

5.3 Multiple food chain activity expanded throughout the last two decades by a margin over co-operative and independent sales expansion which widened since 1957. The rise in the multiple share of national grocery sales from 20% (1957) to 34% (1966) was greater than the increase in any other kind of business, (RB, 121 March 1968 p.3) and multiples controlled 42% of national food sales in 1970, compared with 15% by co-operatives, 23% in independent symbol retailers and 20% in non-symbol independents. (RR, March - April, 1971 p.2). Multiple grocery sales overtook independent grocery sales for the first time in 1971. The Census evidence suggests that increases in multiple food sales were less in Scotland than in Great Britain as a whole over the years 1961 - 66, but while their share of grocery sales remained less than the national average it increased from 18% (1961) to 25% (1966) nonetheless.

5.4 The growth of multiples in the food trades was closely associated with the opening of self-service stores and supermarkets, of which purely numerical increases understates their real importance. In 1966 multiple grocers made 11% of all retail sales with only 2.8% of all retail outlets. (RB, 165 November 1970 p.8). The levels of sales per employee obtained in new self-service outlets opened in the period 1961 - 66 were twice those of the average independent grocery store. The increased market share of multiple food chains was channeled through stores larger and more efficient than those which they were replacing. (See Section C). Secondly, multiple food chain policy and practice influenced the behaviour of other retailers and the impact of the development in size and importance of multiples on the competitiveness of the whole retail sector was considerable. (Smith, 1971 p.13). Though the most intense competition took place between multiple chains, it was the large chain store and not his fellow independent that the small independent grocer traditionally

feared most. (Levy, 1948 p.71).

CONCENTRATION IN THE FOOD TRADES.

5.5 Concentration in grocery retailing in Scotland as measured by the proportion of grocery establishments operated by all organisations with more than ten grocery branches stood at a median level among the standard statistical regions in 1966, (RB, 115 September 1967) but the level of common ownership in the grocery trade was undoubtedly higher. Of the multiple grocery chains located in Scotland at least eight of the largest (Cochrane, Galbraith, Home and Colonial, Lipton, Massey, Maypole, Meadow Dairy and Templeton) were owned by Allied Suppliers Ltd. The arrival of the supermarket implied reorganisation within the multiple sector and the extensive restructuring of group organisation and policies. (Mathias, 1967 p.397). Meadow Dairy outlets were absorbed by Lipton, Cochrane and Templeton in 1962 and in 1970 Galbraith and Cochrane merged in name. These developments emphasised a third facet of the growth of multiple market shares - the increased standardisation and centralisation of retail services under which increases in turnover probably led to decreases in several costs (especially handling, sorting, stockholding and purchasing). (1). During this period Fine Fare and Safeway entered the regional food market and announced, with concerns such as B.H.S. and Littlewoods, large expansion programmes in the late 1960s. The process of concentration within the food trades will inevitably slow down, but DTEDC has concluded that most of the large supermarkets built to 1980 would be operated by only a few large chains which will take a very large share of total food sales. (1971 B, p.20). Smaller chains were being forced into regional and sub-regional roles occupying locations in secondary centres, such as Barr and Cassidy in Glasgow, or Johnstone in Dundee.

INDEPENDENTS.

5.6 Retailing has been characterised by a large number of mostly very small outlets, a surprisingly high proportion of which survived into the post-war period. In 1961 small retailers with an annual turnover

of under £10,000 accounted for 63% of all firms and 12% of national turnover. However, the forces maintaining these units, a consequence of inertia, habit and custom largely independent of purely economic considerations on the part of the retailer, began to break down. (Levy, 1948 p.3). A percentage profit rate applied to the average annual turnovers in the 1966 Census Reports indicates the average shopkeeper was not receiving a high return for his capital and labour, (Bechhofer, Elliot and Rushforth, 1971 p.173) and during that decade, both numerically and by share of trade the position of the independent retailer was deteriorating in all food trades. (RB, 126 August 1968 p.21). From 1961 to 1966 independent sales in grocery and provisions shops in Great Britain increased by 10% (all organisations + 24%) and in other food shops by 8% (all organisations + 17%); with the result that the independent share of sales fell from 52% and 64% respectively in 1961 to 47% and 59% in 1966. In Scotland independents fared rather better in other food retailing and maintained their share of sales, but in the grocery trade sales fell from 49% to 45% over the same period.

5.7 Economies of scale in retailing are greatest with standardised non-perishable products for which there is a steady demand and the other food trades served as a stronghold of independent retailing. With a reclassification of very perishable products under modern storing facilities the multiple chain aided by use of supermarkets has made extensive inroads into these trades and the independent specialist food retailer has declined. The extent of "poaching" has increased with the move towards the provision of one stop shopping facilities and independent greengrocers, fishmongers, butchers and dairymen all suffered from a continuing trend towards self-service retailing which allows grocers to expand at their expense. (RB, 130 December 1968 p.4). The Census evidence suggests that at least until 1966 this trend was again delayed in Scotland.

5.8 The significance of these changes depends on the identification of those sub-sectors where the decline in shares of trade were greatest. (See para. 5.21). In direct contrast to an earlier period when rapid multiplication in the number of small retail outlets unrelated to changes in technology or total sales presented a serious problem, (Smith 1937 p.102) increased retail efficiency was permitted by the present changes. Further decline in the independent share of

trade is expected, (DTEDC, NEDO 1971 B p.21) though the precise future role of the independent food retailer may be open to doubt and dependent on residual factors such as advantageous location, proximity to the consumer and the provision of personal or specialised services.

VOLUNTARY CHAINS.

5.9 While voluntary chains aided the survival of member independent food retailers, (Fulop, 1964) the evidence from the 1966 Census and other sources suggests they represented another manifestation of the trend toward more highly structured food retailing. In 1966 voluntary groups controlled 41% of national grocery sales and in 1970 25% of total retail turnover. Turnover data is not available on a regional basis but the evidence of para. 5.52 indicates both wholesaler sponsored and retail buying groups were established in the Scottish market. Yet in order to compete successfully with larger firms voluntary groups had tended to become tightly knit organisations in which the independence of members was considerably reduced. (NEDO 1971 A p.5). In 1966 60.1% of all independent grocery establishments with turnovers over £50,000 belonged to voluntary groups but only 19.7% of independent establishments with turnovers under £20,000 did so.

CO-OPERATIVE RETAILING.

5.10 1957 - 58 was a climactic year in co-operative retailing activity since which sales in both national and local markets have generally stagnated or declined. From 1961 to 1966 national food sales increased by only 3% against 60% by multiples and 7% by independent retailers. As food sales formed 71% of total co-operative sales in 1966 performance in this sector virtually determined the overall level of results and the share of total retail trade in co-operative hands fell from 11% in 1961 to an estimated 8% in 1970. The real volume of co-operative transactions possibly declined during the latter part of that period. In Scotland the co-operative share of grocery sales fell from 37% in 1950 to 33% in 1961 and 29% in 1966 and compared with other Co-operative Union Regions sales increases were below average over the

periods 1948 - 55 (CIC, 1958 p.9) and 1957 - 71. (2). With minimal competition between societies losses in sales accrued entirely to other retailers.

5.11 In response to this situation the co-operative movement undertook several radical shifts in trading policy which have been described in detail elsewhere (See Co-op Union Annual Reports 1966 - 71) and there is evidence that the adverse trends have stabilised. In spite of generally favourable post-war conditions lower than average performances were to a certain extent inevitable when co-operative strength lay in small rather than city markets, low rather than high income areas and the organisation maintained only a limited foothold in those kinds of businesses and markets which progressed most rapidly in the post-war period. In the present context the origin of lagging co-operative performance, also attributed to a unique social function and the continuance of non-economic services, inflexible reactions and inhibited management are not as relevant as its effect on the provision of co-operative retail services in the study area.

THE SPATIAL ORGANISATION OF CO-OPERATIVE RETAILING.

5.12 There has been wide agreement on the principles of amalgamation, federation and redistributions between societies for a considerable time. (Lucas, 1930). Nevertheless the pace of amalgamation between societies and the rationalisation of the co-operative retail structure represents one of the most tangible symptoms of lagging performance in that sector. Table 5.3 confirms that the number of societies fell from 180 in 1957 to 100 in 1970, with evidence of an acceleration at the end of the decade; but the rate and type of amalgamations did not approximate to recommendations of the Independent Commission (1958) and the National Amalgamation Survey (1960) which delimited 58 retail societies and 14 SCWS retail areas in Scotland of which 46% had over 10,000 members. Only 30% of the societies reached that size in 1970 and the rise in average sales per society over the period 1957 - 71 was considerably less than that in the U.K. as a whole. (Table 5.3). Scottish societies had proportionally fewer members in the largest societies of over 20,000 and 50,000 members.

5.13 The degree of concentration within co-operative retailing in Scotland therefore remained low and lagged behind that in the U.K. Detailed

Table 5.4 Changes in the Structure of Cooperative Retailing: Size of Societies 1961-70

Soc Size (000)	1961 % socs UK	1961 % socs Scot.	1961 % members UK	1961 % members Scot.	1970 % socs UK	1970 % socs Scot.	1970 % members UK	1970 % members Scot.
abv 50	6.7	1.8	52.4	20.0	15.8	4.0	71.9	31.3
20-49	10.5	9.8	20.5	33.3	19.0	14.3	17.5	32.5
15-19	5.6	2.5	6.1	4.5	4.5	3.1	2.3	4.4
10-14	8.4	4.3	6.5	6.0	7.3	9.2	2.7	8.7
5 - 9	17.6	25.8	8.1	20.9	15.8	26.5	3.5	15.2
2 - 4	22.5	34.4	4.7	12.3	24.4	27.6	1.9	6.5
1 -1	11.1	13.4	1.0	2.4		9.2		1.1
und 1	17.7	8.0	0.6	0.6	13.2	6.1	0.2	0.2

Source: Cooperative Statistics for 1961 and 1970

Table 5.5 Change in Numbers of Retail Establishments

Kind of Business	Great Britain 1950-57	1957-61	1961-66
1	+4.2	-0.5	-15.9
2	-10.6	+3.3	-9.0
3	+3.8	-8.7	-9.7
4	-2.4	-1.1	-3.9
5	-1.3	+11.3	+5.7
6	+1.7	-4.3	+5.6
7	+124.4	+1.8	-24.4
Total	-1.0	0.0	-7.0
mults	+9.6	+12.8	+10.7
coops	+13.3	+1.6	-9.2
indeps	-2.8	-8.8	-9.5

Source: p.582 BOTJ 23 Feb 1968 and p.749 18 March 1970

Figures include where possible adjustments for changes in Census scope.

Table 5.6 Changes in Retail Turnover and Establishments in Great Britain and Scotland

Total Retail Trade	1957-1961 GB est	GB to	Scotland est	Scotland to	1961-1966 GB est	GB to	Scotland est	Scotland to
	-0.1	+17.6	-0.7	+12.3	-12.6	+24.8	-9.2	+22.5
1	-0.7	+15.8	+4.0	+15.5	-18.4	+22.9	-16.1	+17.8
2	+3.5	+15.0	+3.9	+ 7.7	-18.0	+17.6	-14.0	+16.7
coops		na			- 9.2	+ 5.9	- 6.6	+ 3.3
mults		na			+ 9.7	+48.7	+12.1	+44.3
indeps		na			-16.0	+16.7	-12.5	+19.3

Sources: Table A Part 13 Area Tables Scotland Report on the Census of Distribution 1961; Table 1 Part 2 Summary Figures Report etc., and Table 8 Vol 1 Census of Distribution 1966

Unadjusted data.

examination of the process of amalgamation and transferred engagements over the period 1957 - 71 (notifications, SC 1957 - 71) suggest operations were generally unplanned, on not necessarily rational lines and in circumstances of weakness, financial embarassment or incipient collapse on the part of merging societies. Several other phenomena have been associated with this situation.

5.14 While direct geographical overlapping has been minimal, co-ordination between neighbouring societies was at a low level and general waste of resources and diffuseness identified by the C.I.C. (1958 p.79) has continued. Co-operative policy lacked the central direction and region-wide perspectives inherent in multiple decision taking. Federal, regional or national organisational influences on local retailing were of a low order, at least until 1966. Boundary arrangements prevented co-operatives from trading in the whole of 'natural' trading areas and developing high threshold facilities dependent on these market areas. At the local level Glasgow, for example, continued to lack a unified trading structure in the early 1970's though symptoms of this situation such as underdeveloped shopping facilities in new areas and too many shops in the declining areas were identified at the beginning of the decade. (Geddes, S.C. August 20, 1960).

5.15 It partly follows that Co-operative retail practice, performance and general rate of progress was irregular and unbalanced. Total self-service implementation was reached in some localities while other areas operated only a few branches on this basis. (See paras. 5.28 and 29). The ownership of supermarkets was heavily concentrated in the hands of a few societies and in the U.K. $\frac{1}{8}$ of all co-operative societies were involved in supermarket operation while in Scotland the proportion was 1/10 in 1963 and in 1969 only 20 societies controlled the 72 Co-operative supermarkets operating in Scotland. Outlet structures, especially in the non-food trades, remained incomplete and patchy in many areas.

5.16 Finally, the CIC had related poor overall performance in the region as a whole to the large proportion of small societies (1958, p.87) and the average size of co-operative societies probably remained too small for effective development during this period. The overall quality of available management was lowered and societies were generally of insufficient size to exploit internal economies of scale. Though

initially leading other organisations within the region with regard to the introduction of self-service techniques Scottish co-operatives lagged behind Co-operatives elsewhere in Britain (CIC 1958, T8) and these societies were not generally in a strong position to develop the second generation of supermarkets of over 10,000 sq.ft. to which multiple food chains turned their attention in the late 1960's.

C SCALE AND INVESTMENT IN RETAILING.

INVESTMENT.

5.17 Investment in retailing has increased considerably in the post-war period; though an investigation of government and other sources revealed that there is virtually no information on capital formation in retailing available at sub-national levels. The findings of a survey of a sample of firms are directly pertinent to the present chapter and have been summarised in Appendix 3. (See George, 1968).

SIZE OF ESTABLISHMENT.

5.18 Changes in establishment size were correlated with changes in sales per employee. Table 5.3 confirms the strength of this relation between kinds of business over the period from 1957 to 1966. The largest portion of the increases in establishment sales sizes took place in the latter half of that period when falls in numbers of grocery stores from 1961 to 1966 were offset by an increase in establishment size which was greater than that for all retail trade. Hall (1971, pp.17 and 18) has shown that the trend in the grocery trade illustrates a relatively extreme position as there was a decline in the market share of both "very small" (£0 - 10,000 p.a.) and "small" establishments (£10,000 - 50,000 p.a.) while large establishments (of more than £200,000 or approx. 4,000 sq.ft. sales area) increased their share of retail trade quite remarkably. These small establishments belonged predominently to small independent firms. Among other food retailers, a less homogenous group, there was a sharp decline in the share of trade of "very small" establishments.

5.19 A portion of the increase in average outlet size is attributable to the increased market share of multiples with their larger than average

Table 5.13 Percentage changes in food sales and other variables

1957-66

	Sales	Establishment size (£000s)	Sales per employee (£000s)	Number of shops
Grocers & provisions	+19%	+48%	+28%	-19%
Dairymen	+17	+98	+26	-41
Butchers	- 5	+ 4	+ 3	- 9
Greengrocers	-17	+23	+ 2	-32
Fishmongers	-20	+16	+ 2	-32
Bread & floor confectioners	-2	+ 3	- 4	+ 1

Source: BOTJ, 23 Feb 1968, price changes deflated by BOT price indices

establishments. On the one hand larger shops are better able to make most use of technological changes such as self-service retailing, while on the other several trends associated with the increasing adoption of self-service methods have combined to ensure that the average size of grocery outlets has increased. In 1961 and 1966 sales by the average self-service unit were over four times as large as those of the average counter service unit, a margin widest for independent stores and least for Co-operatives. Broadly similar differences emerged in floor space sizes. However, while until 1966 the average size of self-service units increased, the growing numbers of independent self-service units has caused a fall back since 1966. In contrast the average size of new multiple and co-operative units continued to rise, (RB, 121 March 1968 p.16) and a re-emphasis in multiple policy from conversions to the opening of new large supermarkets has been particularly significant. Multiple grocery self-service units increased in size by 48% 1961 - 1966. On average supermarkets required sales equal to those of some 40 conventional shops in the food trade in 1966. The trend towards larger supermarkets will continue and by 1980 NEDO (DTEDC 1971 B p.4) estimated that only 400 supermarkets will sell nearly 10% of national food sales.

D SELF-SERVICE AND SUPERMARKETS.

INTRODUCTION.

5.20 Long term competition in retailing has taken the form of competition among different types of trader. The most important trend in food retailing over the past ten years was undoubtedly the growth of self-service retailing and the great increase in the number of supermarkets. (RB, 121 March 1968). The accelerated improvements in labour productivity from 1961 to 1966 reflected both a shift between different types of outlets and a rise in sales per employee within each organisation attributable to this source. In this section attention is directed towards changes in selling techniques in addition to the number and organisation of outlets which have traditionally served examinations of retail efficiency.

5.21 Growth in the proportion of sales made by self-service shops has been

an important factor in increasing overall productivity in food retailing. (George, 1969 p.66). In 1961 the average level of sales per employee obtained in self-service food shops was 30% higher than in comparable counter service stores and in 1966 this margin had widened to almost 50% in the case of grocery establishments. George (1968 p.36) has shown that the increase in output and sales per employee from conversions to self-service methods in the period from 1961 to 1966 were substantially greater than the gains attributable to shop extensions or refittings. Self-service methods enabled retailers to make a more economic use of labour. Ultimately, higher productivity is only worthwhile if it brings the retailer higher profits but as labour costs form 60% of most food shop costs and in the post-war period labour costs increased more rapidly than most other costs, labour saving and various forms of labour substitution offered considerable scope for higher returns.

5.22 The extension of self-service methods has been related to a widening of the range of goods sold in each outlet and a corresponding breakdown of traditional trade boundaries. (See DTEDC, NEDO 1970A p.69). Adoption of the self-service principle requires more floor area and cubic space per good. Proportionally more customers visit the average self-service or supermarket outlet and each customer, on average, also spends more on each transaction and by implication on each shopping trip. These outlets have made possible a great reduction in the total number of selling points needed to reach a market of a given size; the spatial implications of the adoption of this principle will be examined in detail in the next chapter.

SELF-SERVICE AND SUPERMARKET OUTLETS 1950 - 1971.

5.23 In Scotland, Rutherglen and Kirkcaldy Co-operative Societies both lay claim to have first introduced the technique in the early post-was period. British traders were concerned with the techniques potential by the early 1950's but wholehearted commitment, especially on the part of traders operating in Scotland, did not develop until the end of that decade. (Mathias, 1967 p.395). The 1950 Census enumerated only 480 self-service establishments in Britain handling 1.4% of total grocery sales butthe percentage of total grocery sales conducted on a self-service basis rose from 20% in 1961, to over 50%

during 1966 and 66% by 1970. Precisely how many supermarkets were enumerated at any point in time depends on the definition in use and the Census and Self-Service Development Association differ in this respect. However, in 1961 the number of large self-service stores was small and of approximately 870 stores of over 2,000 sq.ft. in 1961 only 100 had selling areas in excess of 5,000 sq.ft. By the end of 1966 there were over 2,750 outlets of over 2,000 sq.ft. with at least 3 check-outs and estimates made since then reveal continued rapid increase. (See A.C. Nielsen & Co., Retail Researcher).

THE ORGANISATIONAL STRUCTURE OF SELF-SERVICE RETAILING.

5.24 Since 1945 there have been changes in the proportion of self-service outlets operated by each type of organisation and the extent to which the adoption of this technique was concentrated amongst a few retail organisations has altered considerably. Multiple retailers, with a few significant exceptions but especially in Scotland, were slow to adopt the new method at first and co-operative societies built up a position of dominance to control 62% of national grocery self-service sales in 1957. In Scotland and Glasgow co-operative societies were responsible for 78% and 60% respectively of all self-service sales in 1955. Compared with a national average of 20%, 36% of grocery sales passed through these outlets in co-operative societies in 1961. However, co-operative self-service sales per employee were only 6% and 12% higher than those in counter service units in 1961 and 1966 respectively and co-operative societies had therefore least to gain from conversion; whereas in multiple food chains this margin was 21% and 35% respectively. The proportion of co-operative self-service units fell rapidly since 1957. (See Table 5.9 (b)). By 1966 the largest proportion of self-service grocery sales passed through multiple chains with 10 or more branches, and the greatest percentage increases in self-service sales in the period from 1961 to 1966 occurred in the multiple sector.

5.25 In 1961 independent retailers made only 11% of total self-service turnover and in 1962 only 2.3% of all independent grocers (against 33% of co-operative and 23% of multiple branches) had converted to self-service methods. (RR, March - April 1963). At that time the

Table 5.9 (a) Self-service retailing in Scotland and Great Britain

	1961		1966		
	G.B.	Scotland	G.B.	Scotland	
Total no. of SS Shops	8635	742	19279	1561	
Sales	479.6	40.9	1356.6	103.5	
Co-op no. of SS Shops	3370	425	5360	707	
Sales	177.2	23.3	299.5	42.6	(£000s)
Size	53	55	56	60	(£000s)
Multiples, 5 or more branches			10 or more branches		
no. of SS Shops	3200	281	6348	571	
Sales	246.3	16.8	778.4	49.9	
Size	77	59	123	87	
Independents, under 5 branches			under 10 branches		
no. of SS Shops	2065	36	7571	283	
Sales	56.1	0.8	278.7	11.0	
Size	27	21	37	39	

Source: Table 5 BOTJ 20 Dec 1963 and Table 26 p2/126 Vol 2 Report on the Census of Distribution 1966

Table 5.9 (b) The organisational structure of self-service retailing

Grocery trade	1957		1961		1966	
	% stores	% sales	%stores	%sales	%stores	%sales
Co-operatives	62.0	61.9	40.5	38.3	27.8	21.5
Multiples (≥10b)	24.4	27.1	28.6	42.4	32.9	57.2
Independents	13.6	11.0	30.1	19.3	39.3	21.0

Source: as Table 5.9 (a)

impact of these techniques amongst the smallest independents was quite unimportant. However, with levels of sales per employee 38% higher in independent self-service units in comparison with the corresponding counter service units, independent retailers had a good deal to gain from conversion to self-service methods, and membership of independent voluntary chains became an important means of raising funds for conversion. Whereas in 1967 unaffiliated independent outlets accounted for only 13% of all independent self-service outlets in Britain, by 1968 the largest single proportion of all self-service grocery establishments were those allied to symbol-groups, which overtook multiple self-service outlets in numerical terms in 1967.

5.26 An early lead was also taken in the supermarket sector by the co-operative movement, but by 1960 the number of multiple establishments of this type exceeded co-operative stores. The degree of concentration in early supermarket development was high. Fine Fare Ltd. controlled over 25% of all supermarkets in 1962, and the role of large national concerns specialising in this sector has been paramount. In 1966 multiples controlled 988 of the 1,144 self-service grocery stores with turnovers of more than £200,000 p.a. The greater financial resources which were available to large multiple organisations enabled them to open large sites which most other type of retailer was unable to finance. Independents were opening very much smaller units.

LARGE FIRMS.

5.27 In the case of those organisations with at least 10 grocery branches operating in the study area data available from directory sources permits a closer examination of the development of self-service retailing. With certain key omissions where, for example, holding companies have not divulged data for constituent organisations, this data is reasonably complete. In Scotland in 1966 there was a high degree of concentration of self-service and supermarket outlets under the control of organisations with at least 10 establishments, attributable to the combined role of co-operative and multiple outlets. The data for 1961, 1966 and 1971 was examined in order to determine the likely effects of organisational structure upon spatial variations

in the implementation of self-service methods in Central Scotland.

5.28 On average 29% of co-operative grocery branches owned by co-operative societies with at least 10 grocery branches were run on self-service lines in 1961; with 54% in 1966 and 84% in 1971. Comparable percentages for multiple firms in the same size-group were 21%, 49% and 82% respectively and data drawn from other sources for organisations not included in these averages, such as Liptons Ltd. for example, broadly confirm this pattern. The overall percentage of stores run on self-service lines (including supermarkets) was thus a little higher in the case of co-operative societies, but by a margin which decreased over the decade. By 1971 a number of societies and multiple grocery chains were being run completely on this basis.

5.29 However, the pace of change varied widely between firms within these broad categories to an extent which was of greater significance than between sector differences. The rapid acceptance of the technique by Cochrane Ltd. (Allied Suppliers), from 18% to 100% implementation over the decade, contrasted with the very limited introduction of self-service methods in branches of Curley Ltd. (to only 8% by 1971). Unlike most multiple grocers, co-operative societies had a fairly localised pattern of sales and the Glasgow societies had low degress of implementation in both 1961 (16.1%) and 1966 (36.5%). Comparing those societies and multiple chains operating in both 1961 and 1966 for which reliable data is available in both years, societies and firms which led in 1961 tended to lead in both 1966 and 1971 also. Examples include co-operative societies such as Kirkcaldy, Lochgelly, Rutherglen and Dalziel and multiple chains such as Galbraith, Massey and Cochrane.

5.30 In 1966 there was a tendency for the degree of implementation reached at that date to vary positively with size of co-operative society (measured by total sales) and size of multiple chain (measured by total number of branches). In the former case the co-efficient of rank correlation was significant at $a = 0.05$ ($r_s = +0.42$, $n = 27$); there were far fewer multiple organisations with which this relationship may be tested, but the association was even more marked.

5.31 It might be expected that organisations undergoing rapid expansion of sales would enjoy a climate more favourable to the rapid and complete introduction of self-service methods. Above average increases in

demand enables the fuller use of staff in existing stores, provides encouragement for the introduction of new methods of selling in existing outlets and also the opening of new ones. George (1968 p.18) found that there was a statistically significant positive correlation between changes in output (sales) and output her head (sppe) between kinds of business from 1957 - 1966. Changes in sales in a number of co-operative societies were measured over the periods 1957 - 61, 1961 - 66 and 1957 - 66 (unadjusted for mergers). There was a significant degree of association betweenchanges in sales over the two sub-periods, with, for example St. Cuthberts (Edinburgh) and Rutherglen performing better than average and the Glasgow societies worse than average. However while the relationship between changes in sales and self-service implementation proved positive in each period, none of the associations proved statistically significant (r_s 1957 - 66 = +0.30, n = 27, n.s.). Thus at least in the case of co-operative societies it was not possible to establish a strong link between changes in total sales and the introduction of self-service methods in the same period.

5.30 More realistically an amalgam of factors less readily tested probably influenced retail firms' policy in this respect. Curleys Ltd., for example, placed an emphasis on a pattern of trading which featured counter service, price cutting, a rapid rate of stockturnover and small establishments. In other cases the environment in which the trader was operating probably exerted a strong influence. In Glasgow the three smallest co-operative societies serving central areas of the city consistently lagged in self-service implementation while Shettleston and Glasgow South, most active in this field, served in part newer areas of suburban housing. Allied Suppliers, which controlled most existing multiple grocery outlets in Scotland in 1961 had been slow to adopt self-service methods initially and Lipton and Maypole, for example, owned very few supermarkets at the beginning of the decade in question. Policy rapidly changed and while in 1961 only 19% of Allied suppliers' stores were self-service and only 11% of these were supermarkets, by 1965 - 66 supermarkets composed 15% of all the chain's outlets (see Footnote 1). As far as a discussion of the spatial pattern of self-service implementation is concerned it is clear that within the broad organisational types adopted here and in Chapter Four there was a wide degree of variation

in the response of individual concerns.

SMALL MULTIPLES, CO-OPERATIVE AND INDEPENDENT FOOD RETAILERS AND THE INTRODUCTION OF SELF-SERVICE RETAILING.

5.31 Information regarding the implementation of self-service methods among small organisations (co-operative societies with less than 10 grocery branches, multiple grocery chains with 5 - 9 branches and independent retailers with less than 5 branches) is not available from the same source. In 1961 the Census recorded so few independent self-service outlets that this omission is unimportant. (See Table 5.9 (a)). In 1966 there were still under 300 such branches, though subsequent growth, closely linked with the expansion of voluntary groups in Scotland, has been rapid. Subject to biases in the composition of entries to Self-Service and Supermarkets Directory the overwhelming number of independent self-service outlets were affiliated to voluntary groups in 1962 and 1968. It is probably significant that in 1968 Scotland had been penetrated by fewer different voluntary chains than in any other region except Wales and more tenuous evidence suggests that chains such as VIVO had proportionally fewer affiliated outlets in Scotland than might be expected on a basis of grocery sales made in the region. (See Footnote 3).

5.32 The Co-operative Directory of 1966 and 1972 provides some evidence on the extent of adoption of these techniques amongst the group of societies in question. While on average it appears that the proportional importance of self-service branches was less than that found in the larger societies the most striking characteristic was the variability in the extent to which the technique had been adopted at both dates. Prestonpans Society operated all grocery branches on self-service lines in 1963; Forfar Society by 1968; but numerous examples may be cited where self-service methods had made little impact in 1972. Very few of these societies operated stores identified as supermarkets in 1972.

SPATIAL VARIATION IN THE IMPLEMENTATION OF SELF-SERVICE METHODS.

5.33 Initial developments in self-service retailing were extremely scattered and have been described elsewhere, (McClelland, 1963) though by 1961 the technique had spread widely enough throughout the country to make some generalisations valid. (BOTJ 20 Dec. 1963 p.1373). Relating the regional percentages of total self-service grocery turnover to regional percentages of total grocery sales striking differences emerge between Greater London, the rest of London and the S.E., Southern and Eastern regions on the one hand where self-service retailing had developed to a considerably greater extent than expencted on this basis, and the rest of the country on the other. (Table 5.10). Self-service sales accounted for over ⅓ of total grocery turnover in Greater London and only 13% in Scotland. The high percentage of grocery sales passing through self-service establishments in London and the S.E. was associated with a high percentage of self-service sales by multiple grocery chains, which rose to 76% in Greater London, while in regions where self-service sales lagged, multiple self-service sales were less important and co-operative self-service sales of greater significance. Scotland occupied a unique position with self-service sales divided almost exclusively between multiples and co-operatives, with the latter predominating in 1961. The Census enumerated only 36 independent self-service grocery units with 1.9% of regional self-service sales in 1961.

5.36 In 1966 self-service grocery sales constituted only one quarter of total grocery sales in Wales, but reached over 60% in Greater London and a national average of 45%; and while the overall range of discrepancies between actual penetration and that expected on a basis of regional grocery sales had declined from 1961 it was still considerable.

5.37 Scottish self-service establishments were 8% below national average sales size in 1961, with those in the remainder of S.E. area, in contrast, 21% above national average size, with similar differences in 1966. Of particular importance, multiple self-service grocery establishments located in London and the S.E. were above average sales-size, in comparison with both multiple self-service establishments operating throughout Britain, and the average size of co-operative self-service units in each region. In Scotland, by

Table 5.10 Self-service retailing by Standard Statistical Region

1961 and 1966

Region	SS turnover as a percentage of grocery turnover	Percentage of SS sales by each organisation			Change in number of grocery stores 1957-61 and 1961-66
		Co-ops	Mults (5)	Indep	
		1961			
Northern	14.3	30	59	12	+4.8
E & W Riding	13.2	52	31	17	-3.8
N.Midland	17.6	57	33	10	+0.4
Eastern	26.9	25	63	12	+1.9
G. London	33.7	14	76	10	-8.8
Rest of L&SE	22.6	20	67	13	-7.4
Southern	28.3	28	58	15	-7.0
S Western	16.4	50	36	14	+8.9
Midland	19.8	52	31	17	+0.1
N Western	15.6	58	31	11	+0.8
Wales	13.0	61	24	16	-3.2
Scotland	16.2	57	41	2	+4.0
GB	20.3	37	51	12	-0.7
		1966			
Northern	55.8	31	57	12	-26.1
Yorks & Hum.	36.3	22	43	35	-29.5
East Midland	41.0	34	43	24	-15.8
E. Anglia	38.7	27	53	20	-6.3
G. London	60.5	12	70	18	-22.8
Rest of L&SE	56.5	13	67	21	-15.6
S Western	43.3	20	52	28	-15.1
West Midland	43.1	28	51	20	-21.4
N Western	36.0	26	50	24	-14.8
Wales	25.7	35	51	14	-10.4
Scotland	33.2	41	48	11	-16.1
GB	44.9	22	57	21	-18.4

Source: Table 3 p.1375 BOTJ 20 Dec 1963
Tables 8 & 26 Report on the Census of Distribution Vols 1 & 2

Table 5.11 Self-service development in the Conurbations

Conurbation	SS stores	Supermarkets	Ratio:1/2	1/pop	2/pop
	1	2	3	4	5
Gt London	2424	360	0.15	0.297	0.044
W Midland	587	97	0.17	0.250	0.041
SE Lancs	721	141	0.20	0.297	0.058
Merseyside	373	84	0.23	0.269	0.06 1
W Yorks	520	63	0.12	0.305	0.037
Tyneside	303	59	0.19	0.356	0.069
Clydeside	632	44	0.07	0.351	0.024

Source: Self-service and Supermarket Directory 1968

contrast, co-operative and multiple self-service units were of approximately average and below average size in 1961, the latter by a margin which had widened in 1966. (See Table 5.9). Overall variations in self-service establishment size more than merely reflected the regional strength and weaknesses of co-operative and multiple trading.

5.38 The relative proportion of self-service and supermarket establishments within each region varied. In 1961 50% of Britain's supermarkets were found in London and the S.E. and co-operative societies were responsible for setting up the greatest proportion of supermarkets found outside this region. In the S.E. (Nielsen regions) the number of supermarkets per million population reached 20 in 1962 while in Scotland this ratio stood below 10. While the proportion of supermarkets located in Scotland rose from 5.1% in 1961 to 8.5% in 1967, they remained numerically less than expected on a basis of population shares. The supermarkets in the key multiple sector remained smaller than in Britain as a whole. The Clydeside conurbation had the lowest ratio of supermarkets to other self-service stores found anywhere in Britain (see Table 5.11) and the ratio of supermarkets per 1,000 population was 30% less than the next lowest figure.

INTRA-REGIONAL VARIATION IN SELF-SERVICE AND SUPERMARKET DEVELOPMENT.

5.39 Paragraphs 5.25 and 5.31 indicated that the location pattern of self-service establishments in the study area in 1961 was almost entirely constrained by the location patterns of co-operative and multiple grocery establishments, (see Chapter Four) and the role of independent food retailers in bringing this innovation to areas where large scale retailing was underdeveloped was negligible. It follows that the location pattern of these two organisations also characterised the location patterns of the first self-service establishments. Co-operative societies were instrumental in ensuring the technique had a much wider diffusion than would otherwise have been the case.

5.40 By 1967 half the grocery turnover in Scotland passed through self-service establishments and this was also the last date for which data

was published by the most authoritative source on the self-service sector, the Self-Service and Supermarket Directory (1968). Unfortunately turnover data was not available from this source.

5.41 Table 5.12 shows that there were no extreme differences in the extent to which self-service techniques had been implemented by 1967. When classified by town sales-size in 1961 the proportional significance of self-service stores was fairly closely related to the percentage of regional grocery sales which occurred in each town class size in 1961. These outlets were numerically less than expected in size classes from £0.5m. - £16.0m. and more than expected in towns and cities over £16m. sales size in 1961 and to that extent self-service retailing had concentrated in the large and dense urban markets of Glasgow, Edinburgh, Dundee and Paisley. In towns of under £1m. sales size in 1961 self-service stores were overwhelmingly owned by co-operative and independent retailers while in contrast multiple outlets were considerably more numerous than independent stores in towns over £1m. sales size, where apart from towns in the £8.0m. - £15.9m. class co-operative self-service stores were also numerically less significant. To measure variation in floor-space size a 10% systematic sample of stores listed in this directory was taken. Floorspace size is correlated with turnover size and the percentage of total self-service sales made by stores of large floorspace size rose steadily through the period 1961 - 1971. No clear relation between sampled store size and town sales size emerged from Table 5.12. The larger than average stores in the £8m. - £15.9m. class were associated with the enhanced importance of co-operative outlets in that class. More generally the co-operative location pattern probably disrupted any association between market size and store size which might otherwise have existed. Secondly, individual site potential was an increasingly important factor in ensuring that the best sites in most locations were taken irrespective of total market size.

5.42 Towns were arranged by income level in 1961 and those in the lower income categories (groups 1 and 2) displayed a higher proportion of self-service stores than expented on the basis of 1961 grocery sales and towns in the higher income categories (groups 3 - 7) considerably less. This pattern reflected the overall co-operative location pattern discussed in Chapter Four. No clear pattern emerged when

Table 5.12 Self-service grocery stores and supermarket location patterns Central Scotland 1967/68

	Town sales size £m 1961						
	0 - 0.9	1 - 1.9	2 - 3.9	4 - 7.9	8 - 15.9	Gt 16	Total
Per cent regional:							
sales 1961	4.1	6.8	8.4	6.7	15.0	59.0	100.0
grocery sales 1961	6.5	9.2	10.8	8.3	13.9	51.4	100.0
self-service stores 1967	5.6	9.1	10.5	7.7	13.5	53.6	100.0
supermarkets 1967	1.7	10.2	16.4	10.4	15.8	45.2	100.0

Ownership of self-service stores

Per cent:						
Co-Op	*	41	48	38	65	39
Independent	*	19	18	15	11	12
Multiple	*	41	34	47	24	49
Total	*	100	100	100	100	100

Ownership of supermarkets

Per cent:						
Co-op	-	25	10	50	33	48
Independent	-	6	-	-	8	4
Multiple	-	69	90	50	59	48
Total	-	100	100	100	100	100

Size of store square feet

Self-service outlets	660	1040	840	870	1020	760
Supermarkets	-	3100	3200	2960	3500	4120

Supermarket location patterns

Town Sales:	8 --- 16		Gt. 16		"Suburban"	N E C
Per cent:	CSA	ROT	CSA	ROT		
Co-op	21	50	33	51	30	50
Multiple	71	42	67	45	70	44
Independent	7	8	-	4	-	6
Total	100	100	100	100	100	100
Size (sq ft)	3980	2830	4390	4050	3890	2740

Source: Self Service and Supermarket Directory (1968)

Note: * 64% of self-service stores in towns under £0.5m were co-operative, 36% independent. In towns £0.5m - £1m 47% were co-operative, 28% independent and 41% multiple.

self-service stores were classified by population change. Towns experiencing the largest proportional decreases in population 1961 - 71 managed to attract more self-service outlets than expected on a basis of their 1961 grocery sales, though it was significant that this class, which contained Glasgow, had a large "deficit" of supermarkets, suggesting that the location of larger (and newer) stores was more sensitive to the effects of population change.

5.43 By far the greatest proportion of supermarkets was found in towns of more than £1m. sales size in 1961. Nevertheless, fewer supermarkets were found in towns and cities of over £16m. sales size than expected on a basis of 1961 grocery sales, though there was a tendency for supermarkets to increase in average floorspace size with town sales size. When supermarket locations were classified to Central Shopping Areas and Rest of Town Areas using 1961 Board of Trade delimitations the largest supermarkets were found in "High Street" locations in 1967. From other sources it seems likely that this pattern reflected multiple locational practice in the early 1960s and the influence of department and variety store food halls run on supermarket lines. (See McClelland, 1966 and Footnote 3). In the period from 1966 - 71 telephone directory and other evidence indicates that the largest supermarkets (Safeway etc.) were being located in suburban or precinct locations. (4). Finally, supermarket size was associated with ownership patterns. Multiples were strongest and co-operatives weakest in C.S.A. locations. Co-operatives supermarkets were proportionally important in other areas, and were associated with lower than average supermarket floorspace sizes; in this respect differing from co-operative self-service stores.

5.44 Additional analyses were permitted in the case of 19 towns with more than 20,000 population in 1961. Within this group there was no correlation between town size in 1961 and the ratio of grocery sales in 1961 to the number of self-service or supermarket establishments. There was a positive correlation, however, between this ratio and the market penetration of co-operatives and a negative correlation with the market penetration by independents in 1961, both significant at the 0.05 level. There was a weak negative relation between the numbers of supermarkets and self-service establishments which reflected the different location patterns of the two types of outlets. Edinburgh was served by relatively numerous supermarkets and fewer self-service

outlets, while in Glasgow the opposite held. This separate trend was probably reinforced towards the end of the decade as increasingly numerous supermarkets sought locations accessible to large untapped residential populations.

E. THE CHANGING NUMBER OF FOOD ESTABLISHMENTS.

NATIONAL TRENDS.

5.45 Since 1961 the total number of retail food establishments in Britain declined in both absolute terms and relative to the total population served. Unlike the increases of the interwar period this decline was probably irreversible. The total number of establishments in kinds of business, 1, 2, 3, 4 and 7 all fell over the period 1961 - 66 but the continuing trend in the food trades was most impressive. (BOTJ, 18 March 1970, p.749). The numbers of grocery, butchers, dairy and greengrocery shops fell by -16%, -14%, -32% and -37% respectively. (See also Table 5.7). It is likely that these trends will continue in the future.(DTEDC, NEDO 1971 B p.21) A.C. Nielsen estimated that the total number of grocery stores fell from 145,000 in 1959 to 111,000 in 1969 and extrapolated this rate of decline to produce an estimated total of 80,000 units in the late 1970s. (See also Tanburn, 1970 p.107).

REGIONAL AND SUB-REGIONAL TRENDS.

5.46 Pronounced regional differences in the rate of change of number of food establishments first emerged in the period 1957 - 61. In Greater London the number of grocery establishments fell by 10%, attributed by the Census authorities to the rapid development of self-service and supermarket stores within that region to control 34% of regional grocery sales in 1961. In the Southern and Eastern regions the same changes were probably hidden by the effects of a relatively rapidly growing population. In Scotland, on the other hand, the number of grocery establishments increased by +4.0%. (See Table 5.10). In the period 1961 - 66 the rate of rationalisation of food (and total retail) establishments once again fell behind the national average in Scotland and Table 5.6 confirms that lesser rates

of contraction in the number of grocery and other food shops applied to most organisations.

INDEPENDENT FOOD OUTLETS.

5.47 Establishments included in this sample (see Appendix) in Scotland declined from 2,773 in 1961 to 1,426 in 1971 (-49%). Overall rates of decline were highest in towns in the study area with exactly 50% of the total in 1961 (-57%). In the sub-period 1961 - 66 there was a fall of -25% and in the period 1966 - 71 -43%. Unfortunately these establishments were not differentiable by size of turnover but on the basis of the evidence in para. 5.18 decline was spread unevenly through the ranks of independent retailers and concentrated in the very smallest. These changes in the numbers of member establishments do not represent equivalent declines in the number of independent grocery outlets. Their significance derives from the erstwhile high survival rate of such small units which has been attributed to the values attached to an independent livelihood, pride and other sociological considerations.

5.48 In Table 5.7 (a) changes in the number of independent grocery establishments over the period from 1961 to 1971 were classified by town sales size in 1961 and a striking positive association emerged. In the case of towns from £8m. to £15.9m. sales size there was a higher than average proportion of independent establishments in 1961, indicating a readjustment was underway in the following decade. The numbers of these establishments fell by -66% in Glasgow, -68% in Paisley and -51% in Edinburgh and this evidence provides no grounds to support the contention that the city environment favoured the survival of a larger proportion of independents than in small towns. (See Smith, 1971 p.24).

5.49 The relation between the population resident in an area and its level of income and the retail facilities found there has been treated as a starting point for several retail studies. (Simmons, 1964 ps. 13 and 154) With data for Chicago Berry showed a 1% change in population engendered a 1% change in the demand for retail establishments over the period 1948 - 58. The range of population changes experienced in towns in the study area in the years 1961 - 71 widened in comparison with the earlier inter-censal period from 1951 - 61 though the overall

Table 5.7 Decline in Independent and Coop Food Establishments

Central Scotland

A

0000-0249	0250-0499	0500-0999	1000-1999	2000-3999	4000-7999	8000-15999	over 16000	TSS, £ 000
Estimated % Independent Grocery Stores 1961-71 %								
-28	-39	-44	-53	-60	-73	-60		
Cooperative Grocery Branch Addresses 1966-71/2 %								
-14	-16	-20	-28	-14	-25	-26*		
Cooperative Food Branch Addresses 1966-71/72 %								
-24	-18	-24	-36	-18	-29	-39*		

*Paisley, Glasgow, Edinburgh only, no data for Dundee

B

80 - 99	100-119	120-139	140- 159	GT 160
Cooperative Grocery Branch Addresses 1966-1971/2 %				
-32	-12	-12	-23	-27	-9
Cooperative Food Branch Addresses 1971/2 %				
-42	-21	-27	-30	-10

C

0 - 12%	12 - 24%	24 - 36%	Gt 36%
Estimated % of Independent Grocery Stores 1961			
Estimated Decline Independent Grocery Stores 1961-71 %			
-44	-62	-56	-54

D

Gt +15%	+5% - +15%	+5% - -5%	-5% - -15%
Population Change 1961 - 1971, Census of Population			
Estimated Decline Independent Grocery Stores 1961-71 %			
-44	-59	-57	-64
Cooperative Grocery Branch Addresses 1966-71/2 %			
-16	-35	-16	-31
Cooperative Food Branch Addresses 1966-71/2 %			
-22	-36	-25	-43

E

lt 1.903	1.903- 1.943	1.944- 1.983	1.984- 2.024	2.025- 2.064	2.065- 2.105	Gt 2.105
Log (Cox's Income Measure 1961)						
Estimated Decline Independent Grocery Stores 1961-71/2 %						
-57	-60	-66	-48	-54	-35	-46
Cooperative Branch Addresses 1966-71/2 % Grocery						
-12	-30	-28	-14		-19	
Cooperative Food Branch Addresses 1966-71/2 %						
-22	-39	-29	-24		-21	

Sources: The Cooperative Directory for 1966 and 1972;
Scottish Grocery Federation Handbook 1961 and 1971

correlation between rates of change in individual towns was statistically significant, (r_s = +0.53, n = 64 towns over £1m. sales in 1961). Unlike experiences in 1931 - 51 and 1951 - 61 the large burghs entered a period of declining population or stagnancy. The rate of population decrease in Glasgow accelerated (-15.2%) and the other two cities in the study area experienced decline while along smaller towns in Penicuik (+68.1%), Bearsden (+46.8%) and Kirkintilloch (+38.5%) population increased appreciably. Table 5.8 (a) shows that against this background there was no systematic association between population decline and the rate of decline of independent grocery stores over the same period and this was confirmed in a separate analysis of the 19 towns with populations of more than 20,000 in 1961.

5.50 Table 5.8 (b) examines the relationship between population change and the changing number of stores in greater detail. Mean rate of change in number of establishments was related to the mean rate of population change in each population change class to produce a measure of changes in the ratio of stores to population over the ten year period. In each class percentage changes in numbers of outlets were considerably greater than percentage changes in population. The overall decline in the ratio of grocery shops to population was greatest in those towns over £1m. sales size in 1961. In contrast, in the period 1950 - 61 the Census authorities had concluded that changes in this ratio were minimal. It will also be noted that the spread in values of the ratio of population change to establishment change was only 6% in towns of over £1m. sales in 1961, while in the case of towns under £1m. sales the greatest decline in the ratio of shops to population was found in towns where population grew fastest, i.e. the relative "thinning" of shops was greatest where population grew fastest. These patterns were repeated in the case of co-operative establishments, and to the extent that these movements represent longer term changes which have not been amended by subsequent multiple activities, simple hypotheses about the role and strength of population change are inadequate. (See Appx. 1).

5.51 There was a slight tendency for the rate of decline among these independent grocery establishments to fall off in the higher income towns in 1961, but as these towns were also small towns no unambiguous

Table 5.8(a) Change in numbers of independent and co-operative establishments by population change 1961-71

	Population change 1961-71 all cases					
	+15%	+5% +14%	+4%-4%		-5% -15%	
Independents	-44%	-59%	-57%		-64%	
Co-ops,G, 1966-72	-16%	-35%	-16%		-31%	
Co-ops,Fd, 1966-72	-22%	-36%	-25%		-43%	

Source: As Table 4.4(a) and Census of Population 1971

Table 5.8(b) Changes in numbers of establishments relative to population change 1961-71

	Population change 1961-71				
	+15%	+5% +14%	+4% -4%	-5% -15%	
64 cases	Town sales sizes greater than £1m.				
Average population change	+30%	+10%	-1%	-11%	
Independent grocery establishments	-55%	-64%	-59%	-61%	
Co-operative grocery establishments	-37%	-43%	-16%	-23%	
Co-operative food establishments	-40%	-42%	-25%	-39%	
47 cases	Town sales sizes less than £1m.				
Average population change	+42%	+11%	+1%	-9%	
Independent grocery establishments	-63%	-51%	-29%	-38%	
Co-operative grocery establishments	-34%	-32%	-14%	-12%	
Co-operative food establishments	-44%	-40%	-20%	-4%	

Source: as Table 5.8(a)

influence may be attributed to variation in consumer income levels and associated consumer behaviour.

VOLUNTARY CHAINS.

5.52 Voluntary chains undoubtedly absorbed some of these declines, if selectively and growth in the number of establishments in this sector in Britain was rapid since 1954. (DTEDC, NEDO 1971 A). Nielsen estimated that the proportion of independent grocery outlets and proportion of grocery turnover controlled by voluntary chains increased from 17% and 13% in 1961 to 32% and 21% in 1969 respectively. Comprehensive evidence on the extent of voluntary chain retailing at the sub-regional level is not widely available. However, the voluntary chain was probably slower to take hold in Scotland than elsewhere in Britain. Secondly, these organisations remained numerically less important in the region than expected on a basis of the region's grocery sales during the following decade. In the mid 1960's fewer different organisations were trading there than in other regions. Finally, an interesting feature of the development of these organisations was marked local variation in their impact, attributable to the centres of initial penetration. (5).

CO-OPERATIVE FOOD OUTLETS.

5.53 During the period 1961 - 66 data relating to the number of grocery branches operated by all co-operative societies in the study area with 10 or more branches indicated only 4 of these 29 retail societies increased the number of their grocery branches during that period, and after a peak in 1963 (+2.0%) the overall number of branches fell by -4.1%. In the case of Kilmarnock Society, in severe financial difficulties at that time, the number of branches fell by -22%. After 1966 the higher rate of amalgamation complicated matters considerably and the rates of rationalisation of grocery outlets in (1) societies resulting from amalgamations during the period 1966 - 71/72 with 10 or more branches in 1971/72, (2) societies unaffected by amalgamations and 10 or more branches in 1966, (3) societies with 5 - 9 branches in 1966, (4) societies with 1 - 4 branches in 1966, were respectively -25% (14 societies), - 20% (20), -14% (17) and -12% (18). The decline

in the total number of food outlets was generally of the same or greater proportional magnitude, from -22% in the case of the first group of societies to -16% and -11% in the third and fourth groups. Rationalisation was therefore running at rates very much in excess of those in the period 1961 - 66. The incidence of merger and amalgamation on the one hand, and size of society on the other, and the rate of rationalisation of branch establishments in the food trade were clearly associated. There is insufficient evidence available to calculate the exact rate of rationalisation amongst branches controlled by Scottish Co-operative Retail Services, a centralised organisation and the largest group in the area, with over 214 retail grocery branches in 1971/72, which was however in excess of -20%. In part the process of amalgamation probably facilitated rationalisation programmes. Rates of rationalisation varied widely from society to society, in some cases reaching over -40%, clearly in excess of that attributable to the general decline and weaknesses of co-operative retailing during this period.

5.54 Table 5.7 A shows that changes in numbers of co-operative grocery and food establishments over the period 1966 - 71/72 were greatest in the largest towns. In towns of under £1m. sales size the falls in co-operative grocery and food outlets of -15% and -21% were less than the falls of -25% and -33% in towns over £1m. sales size in 1961. There were wide variations in rates of change within each size class; the number of grocery and food stores fell by -35% and -47% in Glasgow, by 33% each in Paisley but only -6% and -20% in Edinburgh where these stores were of considerably larger than average size already. In contrast, in the decade 1945 - 55 over 100 co-operative branches had been opened in the city of Glasgow, aided by Corporation letting policy.

5.55 Table 5.7 B shows there was a tendency for areas where co-operative retailing was strongest in 1961 to experience lesser rates of decline, and markets where co-operative retailing was weakest to experience the heaviest rates of decline, though these were also the smallest and largest markets respectively. In the 19 towns over 20,000 population in 1961 the negative association between co-operative market penetration and the percentage decline in grocery stores was statistically significant at $a = 0.05$ ($r_s = -0.400$, $n = 19$) Table 5.8 (a) reveals no systematic association between population decline

over the decade and the rate of decline in co-operative food and grocery stores 1966 - 71/72. Table 5.8 (b) indicates the thinning of co-operative grocery and food stores was greatest in towns where population grew relatively fastest.

MULTIPLE GROCERY STORES.

5.56 In the case of multiple grocery chains the available data does not permit adjustments for the effects of amalgamations. Some chains substantially increased the number of their branches during the period 1961 - 71 and undergoing a natural process of expansion Hay & Co. (+45% increase in branches 1961 - 71), Jamieson (+120%) and Curley (+29%) each widened the scope of their grocery retailing activities. But more generally established retailers undertook through-going rationalisation programmes, and during the period 1961 - 66 the total number of branches belonging to grocery multiples with 10 or more branches operating within the study area fell by -0.8% net and during the period 1966 - 71 by -20%. With 150 grocery branches in 1961 Cochrane eliminated 30% by 1971; with over 200 in 1961 Galbraiths 13%. Increased multiple sales were made from a smaller number of establishments.

5.57 Often several small branches were closed down when one new outlet opened and changes in the number of establishments only partially reflected more complete changes in retail structure, especially with regard to changes in establishment size. By 1962, for example, Allied Suppliers had adopted an intensive policy of redirecting sales through larger premises and the company closed down uneconomic small branches which by reason of their size were unsuitable for conversion to self-service methods. (Annual Report, May 1962). In both 1961 and 1966 the internal ratio of closures to openings ran at 3:1 and the total number of outlets operated by this company throughout Britain fell from 4,021 (1956) to 3,669 (1961) and 2,600 (1966), an overall fall of -35%. It became an important element of multiple policy to dispose of small outlets and build only on new supermarket sites.

5.58 The foregoing does not fully take into account theentry into the Scottish retail food market of several large national chains in the mid 1960s. (See para. 5.5). In 1967 Coopers-Fine Fare projected 50

new supermarkets in Scotland in a short period of time. (JGCC, 9 Sept. 1967, p.501). The development plans of variety chain retailers such as Littlewoods (JGCC 5 May 1967, p.257), Marks and Spencer (JGCC 6 June 1970, p.279) and Woolworths etc. are relevant when they include provision for large food halls run on supermarket lines.

5.59 The total number of multiple grocery outlets listed in the telephone directory remained remarkably constant over the period 1961 - 71 and closures were concentrated in stores which were not listed in this source. The characteristics of these stores were described in para. 4.A.5 and on the basis of local directories these stores were located in inner urban areas and other marginal areas which were particularly prone to redevelopment during that period. In the period 1961 - 66 information supplied directly by the Business Statistics Office revealed the rate of decline among all multiple establishments in Glasgow (-13%) was twice the rate which prevailed in Edinburgh (-6%). The greatest relative rates of decline appeared in the Central Clydeside Conurbation, where multiple grocery establishments were well established in 1961. Expansion took place elsewhere. The number of towns where multiple food chains were active increased during the decade, and as multiples were searching for markets offering scope for the expansion of their activities, these tended to be small and medium sized towns (e.g. Alloa, Irvine, Arbroath, Broxburn, Grangemouth, Penicuik etc.).

F SUMMARY AND CONCLUSIONS.

5.60 1. A number of factors associated with changing retail methods were identified and examined separately.

NATIONAL TRENDS.

2. Since 1961 the overall number of retail establishments has declined appreciably in the food trades. The number of retail outlets necessary to serve a given population fell.

3. This decline was concentrated in "small" and "very small" establishments.

4. The number of outlets and sales through self-service or supermarket lines rose consistently through that period.

5. The adjustments of changes in numbers of establishments and changes in establishment size have been interrelated and there has been a consistent trend towards larger food stores.

6. The progress of these trends was greatly facilitated by the emergence of a more highly structured food retailing and allied changes in the organisational structure of retailing.

7. The deliberately conceived methods of curtailment to reduce the multiplicity of retail outlets and lead the way to greater economies in retail distribution which were envisaged in the pre-war period have not been necessary.

8. Appendix 1 indicates that in the process of change these factors were interlinked and it is misleading to speak of the separate effects of each.

9. The reduction of the traditionally most "inefficient" sector of the food trade with the elimination of the smallest units has been a potent force in increasing the overall level of retail efficiency.

CHANGE IN RETAILING IN CENTRAL SCOTLAND.

10. The rate of expansion of self-service sales and outlets and rationalisation of food outlets in Scotland lagged behind comparable national rates over the period 1961 - 66. On the evidence available for all types of organisation the pace of modernisation of retail services was initially slower. It may be inferred that in this period there was a tendency to 'make do and mend' with older and less efficient establishments (with probably lower capital costs, rent and rate burdens). The average size of grocery and other food establishments fell relative to the national average over this period and overall levels of sales per employee remained at lower levels. The rate of technical change was less in the economic conditions found in Scotland.

11. The nature of the retail market prevailing in Scotland since 1945 was one which evidently dampened entrepreneurial response. Food and total retail turnover rose at rates less than the national average and key aspects in this situation were a slowly expanding population, lower than average levels of per capita income, and a high rate of unemployment.

12. Multiple outlets failed to expand sales in Scotland in the grocery and other food and total retail sales at national rates in the period 1961 - 66, in circumstances where their share of the regional food market was already below national level. In contrast, London and the S.E. of the W.Midlands conurbation offered a large market with high population densities and above average income levels. In localities like Croydon, Kingston, Wimbledon, Finchley and Harrow (London), Longbridge or Erdington (Birmingham), consumer traffic was, in addition, fairly specialised. The fact that grocery multiples were often regionally based, serving a conurbation or well defined region within a day's return drive from a single central warehouse, has meant that these innovations only slowly percolated elsewhere. These variables were also operational at sub-regional levels.

INTRAREGIONAL TRENDS.

13. Nevertheless all available evidence indicated rationalisation in the number of grocery and other food outlets operated by each organisation in the study area; in total, in classification by town-size and other variables or in any particular locality. The rate of this rationalisation was greater than that of population change and in spite of increases in the average income level over this period.

14. The declines were not unique to small retailers and were common to all retail organisations.

15. There was no direct systematic spatial association between the rate of decline in retail branches and population change, the pattern of income variation in 1961 or the strength of each organisation in 1961; and these factors cannot be held responsible for the whole of the decline in number of outlets in any locality.

16. There were intra-regional variations in the rate of implementation of self-service techniques and supermarkets which were most closely related to the organisational structure of retailing.

17. There were marked differences between the locational patterns of self-service and supermarket stores related in part to the time lag between the general implementation of each technique.

FOOTNOTES TO CHAPTER FIVE.

Footnote (1). However, the effects of a high degree of concentration could have had deleterious effects and the chains operating in C. Scotland which belonged to Allied Suppliers differed in policy from national supermarket chains at a crucial point in time when they emphasised conversion to self-service operations rather than opening new large self-service outlets. (See Mathias, 1967 p.396). Allied Suppliers' market penetration was deep and the company experienced difficulty in finding new sites which did not clash with existing constituent branches. See Mathias for other aspects of "commercial inertia".

Footnote (2). In the case of a limited number of large towns it is possible to form estimates of the decline of co-operative retailing at sub-regional levels. Gaskin estimated 11% of Glasgow's sales were made by co-operative societies in 1950; in 1961 the Census returned 9%, and in 1966 under 7%. In Edinburgh this share fell from 16% in 1961 to 14% in 1966.

Footnote (3). Holdren (1960) indicated that to attain sales levels necessary for viable operations supermarkets first located in well-established principal shopping centres. They later moved into the suburbs and spread out in the typical convenience goods trades pattern ultimately approximately reflecting density of population.

Footnote (4). Using data notified in the technical press the spatial aspects of the rapid evolution of store sizes may be precisely defined. The Coopers-Fine Fare store opened in April 1966 at Howard Street Glasgow (CSA) was the largest (8,000 sq.ft.) they had opened to that date. When Safeway opened their first Scottish supermarket in January 1965 at Muirend (suburbanGlasgow) it was the largest in Britain (14,000 sq.ft.). In 1971 the first planning application for a hypermarket in West Central Scotland, in Bishopbriggs (peripheral Glasgow), of 103,000 sq.ft. was received from B.H.S. (J.G.C.C., March 1971 p.102).

Footnote (5). SPAR outlets were first established in Edinburgh in mid 1961, though there were over 3,000 establishments in other parts of Britain then. In 1963 there were only 140 VIVO retailers in Scotland of 2,500 in Britain as a whole. VG group trading did not start in the east of Scotland until 1964 and remained concentrated in east and central Scotland, not extending operations to elsewhere until 1966. The impact of this type of trading was highest in Dundee in comparison with other areas throughout the period.

Footnote (6). Subject to the reservations in the Appendix.

Footnote (7). Differences in the number of shops per square mile were of course even more marked.

APPENDIX 1 TO CHAPTER FIVE.

RETAIL CHANGE WITHIN LOCAL AUTHORITY AREAS.

A.1 Changes attributable to population movements within Local Authority areas are particularly difficult to measure and their neglect leads to underestimation of the role of population change in evolving retail structures. In Central Scotland these developments were inextricably linked with Local Authority policy on the provision of retail facilities. As a party to most of the population movements in question and because they exercised a great deal of control over the number and type of retail outlets built to serve expanding areas Local Authorities were indirectly responsible for some of the changes described in this chapter. Yet few had explicit policies towards retailing. This appendix will show that an irreversible ratchet-like effect served to drastically reduce the numerical level of shopping provision within a city area like Glasgow.

A.2 The first development plan for Glasgow was published in 1954. Under the quinquennial review of 1962 approval in principle was given to a total of 26 Comprehensive Development Areas (CDAs) and when the Corporation undertook a reappraisal of its planning priorities in 1970 29 CDAs had been delineated. With increasingly important voluntary population movements these schemes were a vehicle for heavy depopulation of certain areas of the city. By 1967 Hutcheston - Gorbals (proposed total reduction in population of -17,000 or -63% of the initial resident population) neared completion and Pollockshaws (-1,000 or -15%), Townhead (-12,700 or -64%), Anderston (-8,000 or -64%), Lowcaddens (-2,900 or -59%) and Woodside (-11,500 or -62%) were all at least half way completed. The overall net population decline in Glasgow 1961 - 71 was -15.2%; these figures provide one indication of the greater magnitude of gross population movements within this and to a lesser extent most other older urban areas in the region.

A.3 The records of co-operative societies trading in the inner city areas of Glasgow provide a unique record of the timing and effects of these events of the local pattern of retailing. Redevelopment had the greatest effect on the small societies (and all retailers) with establishments concentrated in the affected areas. The last "normal"

year for St. Rollox Society, which traded in the Townhead area, was 1953, and the society was saved from collapse by merger with Cowlairs in 1960. Peak sales levels were made by Tollcross Society in 1957 and in 1962 the society was forced to merge with Eastern Society. In the case of Cowlairs Society in the year ending July 1967 20 establishments (more than 10%) were closed. Leith Society undertook extensive rationalisations in 1962 and in 1964, shortly after which the total level of sales began to decline, it was claimed the total population within its trading area was less than that in 1864. In the middle of the decade larger societies in Glasgow with surburban trade were clearly affected.

A.4 Within Glasgow the transfer of population from old to new areas inside and outside the city area was accompanied by a drastic reduction in the total number of shops serving a given population. (Brennan, 1959 p.43). That author estimated the overall density of shops in the inner city area in the middle 1950s was over 103 shops per 10,000 population but in the new estates only 12-15.(7) Subsequent developments in Easterhouse and Castlemilk etc. increased the level of shopping provision in these areas, but the magnitudes of this difference were substantially the same in 1971. Several factors were responsible for this pattern.

A.5 In areas already developed the pattern of retailing was resistant to change owing to the strength of custom, the cost of adopting buildings and the limitations on competition. Stores in the inner city areas were already old and in areas from which population had moved there was little incentive for modernisation. Decline in the number of stores will be greater where population and income levels are both declining, (Berry, 1963 p.173) and this was the case in inner Glasgow which suffered large drops in socio-economic status under selective migration. Shop units became redundant and mortality rates among small retail businesses probably rose.(See Simmons, 1964 p.72). Those independent traders under the greatest pressure from these forces were often those least capable of responding to them.

A.6 In parts of the city built since 1914 the distribution of shops has been largely determined by Corporation building, renting and letting policy the effect of which firmly favoured a reduction in the number of shops. The high level of rents payable on new shopping units and

the initial under-provision of retail outlets made the survival of small independent units on these estates difficult, to which the widespread use of mobile shopping facilities bears some testimony. The poor financial position of independent retailers vis a vis multiple traders was an important factor in this respect. The proportion of stores in new areas owned by multiples and co-operatives reached high levels and 100% on several precincts in Glasgow in 1971.

A.7 Significantly Local Authority schemes were spread throughout the region and most of the large towns in the study area adopted CDA proposals. 42 shops in Cambuslang town centre were completed in 1965; 33 units had been completed in Dumbarton in 1968, (15% of all outlets in 1961); the redevelopment of Motherwell town centre with a parade of 60 shops and several department stores was completed in 1969, (40 % of CSA outlets in 1961); the first phase of Paisley's central redevelopment, which included over 30 units was completed in that year, (15 % of outlets in CSA in 1961); and by 1971 a pedestrian precinct with 130 units neared completion in Greenock, (7 0% of outlets in CSA in 1961).

APPENDIX 2 TO CHAPTER FIVE.

DATA SOURCES.

A.1 Care is necessary in interpreting the available Census evidence on changes in the number of retail establishments at sub-national levels, the precise magnitudes of which are dependent on changes in census coverage, scope and classification; the precision with which establishments are classified to each kind of business; changes in the census sampling frame and retailer response rates. While returns and estimates for multiple and co-operative concerns are subject to narrow confidence limits adequate information on these counts is not generally available. In addition the published data deals only with net changes which are the result of very much larger and more volatile gross movements, about which very little is known. (Bechhofer, Elliot and Rushforth, 1971 p.179).

A.2 The changes which were discussed in this chapter were long run changes. In different circumstances B.J.L. Berry was able to differentiate quantitatively between the effects of changes in the total number of shops attributable to short run factors such as changes in real income, neighbourhood income levels relative to city wide median levels, population change, and long run changes in retail technology. (Berry, 1963 p.171). It was estimated that the net loss in retail outlets in Chicago over the period 1948 - 58 attributable to technological change amounted to 5.9% p.a. In the present case the available Census data was such as to render impracticable the calculation of rates of change in numbers of establishments at a sub-regional level over the periods 1950 - 61 and 1961 - 66.

A.3 Several alternative sources may be utilised to furnish information, particularly with regard to data relating to different organisations which will never be released under the disclosure rule. Definitions and time periods differ marginally between each source and, for example, figures refer to "member establishments", "branch addresses" and "number of branches", which may not correspond exactly. Except in the broadest sense of the term the changes by different organisations are not additive. The following sources of information were adopted:

1. Independent grocery establishments: direct and affiliated members

of the Scottish Federation of Grocers Associations.

2. Co-operative grocery and food establishments: The Grocer Directory (see below) and the Co-operative Directory 1957, 1966 and 1972.

3. Multiple grocery stores: The Grocer Directory of Multiples and Co-operatives in the Food Trades 1961, 1966 and 1971; Telephone directory entries and notifications of branch openings in the Scottish Grocer 1961 - 71.

APPENDIX 3 TO CHAPTER FIVE.

INVESTMENT IN RETAILING.

From 1961 to 1966 capital employed increased more than labour input in each kind of business analysed in one study. (George, 1968 p.76) The increase in the capital labour ratio was highest in grocers and provisions dealers. There is no doubt investment in retailing has been linked with improvements in sales per employee; large scale investment has been directed towards larger shops, and improved facilities within those shops. George attempted to attribute increases in sales per employee to either capital deepening (i.e. increases in capital per employee) or technical and organisational change (a residual category comprised of improved methods). The validity of this technique has been questioned as this approach assumes that technical change is independent of the rate of investment and profit and probably understates capital's importance as the means by which technical change is implemented. However, in the case of grocers the contribution of technical and organisational change to increased sales per employee was about 65%; or looked at another way 30% of the rate of increase of output over the period 1961 - 66 was due to progress in technical and organisational knowledge. The high rate of 'progress' for grocers was undoubtedly a reflection of the importance of the growth of self-service retailing in that kind of business. (George, 1968 p.30).

CHAPTER SIX CONCLUSIONS

The interaction of shop location and the level of efficiency in retailing

6.1 In general the moves described in the previous chapter led to increased operational efficiency. Food retailing has proved to be the most rewarding sector of distribution for successful efforts to improve efficiency. While in aggregate terms turnover rose over the decade 1961-71, the size of the labour force and total number of shops fell. The proportion of part-time and female employees increased dramatiaally. After making allowances for the uneven distribution of population it was concluded on a basis of the 1961 evidence that a very substantial reduction in the number of grocery and other food outlets could be tolerated. (McClelland, 1966 p.222)

6.2 The following points are of relevance to the theme of this conclusion:

1 The location pattern of food outlets changed radically with a spatial contraction of retail food supply points. In particular, the small independent outlet, with a location pattern characterised by the twin elements of ubiquity and multiplicity, declined in absolute and relative importance.

2 A new type of locational specialisation began to emerge as fewer and very much larger supermarkets served wider areas from specially selected sites. In 1957 37% of all grocers, 21% of greengrocers and 13% of butchers were located in streets with less than 5 shops of all kinds located there, (Corlett, 1960) mostly serving the needs of customers within a short distance. Food shopping facilities became less localised and more centralised.

3 The relative proportion of food establishments in each type of retail conformation fell with the decline in numbers of food outlets and the disappearance and merger of hitherto differentiated food trades.

4 There was increasing standardisation in retail operations; both within each shop, and associated with the increasing importance of multiple food chains, between shops also.

5 The efficiency of the physical distribution system (ie. from supplier to retail outlets) is relevant to the general question of operational efficiency in retailing. Over the last decade wholesalers and manufacturers were able to rationalise their operations as the number of outlets declined and retail purchasing power became concentrated in fewer hands. In the study area and the two year period to May 1967, for example, the United Co-operative Bakery Service lost almost 200 selling points, a large part of which was directly attributable to the changes described in Chapter Five.

6.3 In terms of the potential economies of scale available, and other important operational characteristics, food outlets may be ranked in distinct order. At the lower end lie independently owned, small scale counter-service units located in residual street or parade locations; in the middle ranges multiple supermarkets or food halls, under entirely self-service lines in precinct or shopping centre locations; and in the upper ranges a small number of very large retail establishments in free-standing locations. The level of sales per employee in any locality will increasingly depend on the local mix of these different types of store. One of the major influences affecting the local level of retail behaviour is the degree of supermarket competition. One study noted that among small independent grocers sampled average net margins as a percenta ge of turnover were lower in those shops where there was a supermarket in the vicinity than in those where there was not. (NBPI Report no.165, Cmnd 4645 1971 para 195)

6.4 However, a complete explanation of the location pattern of an industry must be made with reference to the relevant cost structures and likely revenue schedules. The most important sense in which the pattern of retailing activity differs from that in 1961 is in the changed structure of retail costs. No single approach to an examination of this problem would be equally suitable for the "corner" shop, the voluntary chain grocer or the supermarket. The information necessary to discuss these changes was not available for a study of this type.

6.5 There are also other reasons why it is not possible to say quantitatively how retailing has grown more efficient, nor what part different factors have played in changes in retailing at the intra-regional scale. Various measures of performance are available. But in an

operation as complex as food retailing has become over the last decade, there is no single standard by which efficiency may be satisfactorily compared between establishments of fundamentally different type and size. The transfer of function between shop, warehouse and factory, or within each organisation, and the extent of cross-subsidisation between branches of different size and type, are problems which render the application of single measures inappropriate. More generally, in light of the present state of retail technology, comparisons based upon measures of operational efficiency and standards of management are not sufficient, as they tend to over simplify the real state of affairs.

6.6 The following points are relevant:

1 If economies of scale extend into the highest ranges of food store sizes, there will be conflict between minimising total consumer travel costs and maximising retail operating efficiency.

2 There are upper limits to the intensity with which retail facilities may be used without conserving capital and labour supplies at a cost of increasing consumer congestion and inconvenience at the concentrated retail facilities (even if only at certain times).

3 In some areas further change in retail facilities there or close by will imply a decline in the level of provision of retail services which will be felt particularly acutely by some socio-economic groups.

4 A fourth qualification must take account of the evolving ownership pattern among concentrations of large-scale retail outlets. If oligopolistic situations develop locally the level of competition would decline and lo se its effectiveness.

5 With the increase in the minimum size of new retail developments further changes in retail capacity will occur less smoothly than has been the case in the past. Indivisibilities will increasingly set up bars to rapid development. An advisory study concluded that only four hypermarkets would generaate 6% of the <u>total</u> retail turnover in the Clydeside Conurbation in 1970, (Eve & Co., 1971 p.21) or that of approximately 840 shops.

6.7 In little over a decade retailing has assumed many of the characteristics of large scale manufacturing industries. Yet these changes have taken place against a background where few of the local authorities in the study area operated a clearly defined and explicit policy towards

the provision of retail services. The implementation of further changes in retail technology will require the co-ordination of forward planning on a much wider scale than hitherto, and much more intensive monitoring than has been the case till now.

BIBLIOGRAPHY

1 Alexandersson, G. The Industrial Structure of American Cities 1957

2 Bechhofer, F., Elliott, B., Rushforth, M. The Market Situation of Small Shopkeepers SJPE June 1971

3 Berry, B.J.L. The Geography of Retailing 1967

4 Berry, B.J.L. Commercial Structure and Commercial Blight Chicago University Geography Department Research Paper 85 1963

5 Bird, A. and Sons Ltd. Mrs Housewife and Her Grocer 1957 and 1961

6 Brennan, T. Reshaping a City 1959

7 Carr-Saunders, A., Florence, S.F., Peers, R. Consumer's Co-operation in Great Britain 1937

8 Carruthers, W.I. Major Shopping Centres in England and Wales in 1961 JRSA May 1967

9 Co-operative Independent Commision Report (Co-operative Union) 1958

10 Corlett, T. Sampling Shops British Market Research Bureau 1960

11 Cox, W.E. Jn. The Estimation of Incomes and Expenditures in British Towns JRSS Series C 1968

12 Davies, R.L. Variable Relationships in Central Place and Retail Potential Models JRSA May 1970

13 Distributive Trades Economic Development Council NEDO Urban Models in Shopping Studies 1970 A

14 DTEDC, NEDO Special Report: Evidence to the Bolton Committee of Enquiry on Small Firms May 1970 B

15 DTEDC, NEDO Voluntary Group Trading 1971 A

16 DTEDC, NEDO The Future Pattern of Shopping 1971 B

17 Duncan, O.D. Service Industries and the Urban Hierarchy P&HRSA 1959

18 Elliot, C.J. The Retail Grocery Trade 1938

19 Eve & Co. Glasgow: A Report on Aspects of Future Shopping Provision 1971

20 Fleming, J.B. An Analysis of Shops and Service Trades in Scottish Towns SGM 1954

21 Fleming, J.B and Green, F.H.W. Some Relations Between Country and Town SGM 1953

25 Florence, P.S. Investment, Location and Size of Plant 1948

26 Ford, P. Competition and the number of retail shops 1901-31 EJ 1935

27 Fulop, C. Competition for Consumers 1964

28 Gaskin, M. Commerce in Glasgow, Chapter 11 in Cunnison, J.B. and Gilfillan, J.B.S. Glasgow, Third Statistical Account of Scotland 1958

29 George, K.D. Productivity in Distribution 1966

30 " Productivity and Capital Expenditure in Retailing 1968

31 " Productivity in the Distributive Trades BOUIE&S May 1969

32 Gornwall, E. Some Aspects of the Retail Greengrocery Trade in an Industrial Working Class District JIE 11 1953-54

33 Hall, M. The Small Unit in the Distributive Trades The Committee of Enquiry on Small Firms Research Paper no. 8 1971

34 Hall, M. & Knapp, J. Labour Productivity in Capitalist and Co-operative Shop Trading and Comment, Florence, P.S. JIE 1956

35 Hall, M., Knapp, J. & Winsten, C. Distribution in Great Britain and North America 1961

36 Hill, S.R. The Distributive Sector 1966

37 Jefferys, J.B. Retailing in Britain 1850-1950 NIESR 1953

38 Jefferys, J.B. & Knee, D. Retailing in Europe 1962

39 Lesser, C.E.V. Some Aspects of the Industrial Structure of Scotland University of Glasgow DESR OCC PAPERS no 5 1951

40 Levy, S. The Shops of Britain 1948

41 Lipsey, D. Productivity in Distribution: A Summary of the Literature DTEDC, NEDO 1971

42 Lucas, J. Closer Union in Scotland Co-operative Union 1930

43 McAnally, A.P. Grocery Trade in Shopping Centres JIE 13 1964-65

44 " Investment and Productivity in Retailing JIE 15 1966

45 McAnally, A.P. & Scott, M.E. Labour Productivity in Department Stores OEP 6 1957-58

46 McClelland, W.G. Studies in Retailing 1963

47 McClelland, W.G. Sales per Person and Size in Retailing JIE 6 1957-58

48 " Costs and Competition in Retailing 1966

49 Matheson, W.R. Retail Distributive Trade in Scotland SJPE 1956

50 Mathias, P. The Retailing Revolution 1967

51 Morrisett, The Economic Structure of American Cities RSA 1958

52 Moser, C.A. & Scott, W. British Towns 1961

53 Pasdermadjian, H. The Department Store 1954

54 Pollard, S. & Hughes, J.D. Retailing Costs OEP NS 1955

55 " " Labour in British Retail Trade 1950 YBESR 1956

56 Price, D.G. An Analysis of Retail Turnover in England and Wales RS 1970

57 Reddaway, W.B. Effects of the Selective Employment Tax First Report: The Distributive Trades 1970

58 Report of the Committee of Enquiry into Commercial Rating CMND 4366 1970

59 Rhodes, B. Co-operative Retailing in Scotland SC Aug 1964

60 Robertson, I.M.L. Population Census and Research TIBG 1969

61 Scott, P. Geography and Retailing 1970

62 The Scottish Economy 1965-70 A Pland for Expansion Cmnd 2864

63 Simmons, J. The Changing Pattern of Retail Location University of Chicago Department of Geography Research Paper 92 1964

64 Sleeman, J.F. The Geographical Distribution of Motor Cars SJPE 1961

65 " A New Look at the Distribution of Private Cars in Britain SJPE 1969

66 " Retail Distribution: Some Regional Comparisons SJPE 1957

67 Smith, A.D. Small Retailers: Prospects and Policies Committee of Enquiry into Small Firms Research Paper no. 15 1971

68 Smith, H. Retail Distribution, A Critical Analysis 1937

69 Tanburn, J. People, Shops and the 1970's 1970

70 Tarrant, J.R. Retail Distribution in E. Yorkshire in Relation to Central Place Theory 1967

71 Thorpe, D. The Main Shopping Centres of Great Britain in 1961

US 1968

72 Waugh, A. The Lipton Story 1951

73 The Wheatley Report: Report of the Royal Commission on Local Government in Scotland Cmnd 4150 and Appendices 10 & 11 with Written Evidence Vols 1- 26 1969

74 Wilkins, L.T. Estimating the Social Class of Towns Applied Statistics 1952

ADDITIONAL REFERENCES

Garner, B. The Internal Structure of Retail Nucleations 1966

Mc Crone, G. Scotland's Economic Progress 1951-1960 1965

Roberts, C. Labour Productivity in Capitalist and Co-operative Shop Retailing JIE October 1955 Vol IV

INDEX TO PERIODICALS

BOTJ	Board of Trade Journal
BOUIES	Bulletin of Oxford University Institute of Economics and Statistics
EG	Estates Gazette
EJ	Economic Journal
JGCC	Journal of Glasgow Chamber of Commerce
JIE	Journal of Industrial Economics
OEP	Oxford Economic Papers
P&P RSA	Papers and Proceedings of the Regional Science Association
RB	Retail Business (Economist Intelligence Unit)
RR	Retail Researcher (Neilsen & Co Ltd)
RS	Regional Studies
SC	Scottish Co-operator
SGM	Scottish Geographic Magazine
SJPE	Scottish Journal of Political Economy
TIBG	Transactions Institute of British Geographers
US	Urban Studies
YBESR	Yorkshire Bulletin of Economic and Social Research